BEFORE THE NATIONAL GREEN TRIBUNAL SOUTHERN ZONE, CHENNAI

Original Application No. 115 of 2025

IN THE MATTER OF:

Tribunal on its own motion Suo Motu based on the news item in English National Daily Times of India dated 30.06.2025 under the caption **"Reactor blast in Telangana: 12 killed after fire breaks out in Pashamylaram; PM Modi announces ex gratia"**

-Vs-

Telangana State Pollution Control Board & Ors. …Respondent(s)

ADDITIONAL REPORT OF THE 7th RESPONDENT – DIRECTOR OF FACTORIES DEPARTMENT

S.NO	DATE	DESCRIPTION	PG-NO
1.	04.09.2025	Investigation Report by the **Technical Expert Committee (CSIR & Forensic Fire and Cyber Investigators)**	**1**
2.	18.11.2025	**Annexure - I –** Compensation Paid details to the Deceased Employees as on 18.11.2025	**279**
3.	18.11.2025	**Annexure - II –** Compensation Paid details to the Missing Employees as on 18.11.2025	**282**
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5.		**Annexure – IV –** Translated copy of the Annexure 16 in the Expert Committee Report	**285**

Place: Chennai

Date: 11.12.2025

Mrs. H. Yasmeen Ali,
Counsel for the 7th Respondent.

Confidential and for Restricted circulation only

Investigation Report

on

The Explosion at M/s Sigachi Industries Limited, Pashamylaram, on 30th June, 2025

by

Forensic Fire and Cyber Investigators

Technical Expert Committee

(CSIR & Forensic Fire and Cyber Investigators)

Submitted to

Government of Telangana

September 2025

Investigation Report

on

The Explosion at M/s Sigachi Industries Limited, Pashamylaram, on 30th June, 2025

by

Technical Expert Committee

Submitted to

Government of Telangana

(Dr. T. Prathap Kumar)
(Member)

(Dr. M. Surianarayanan)
(Member)

(Dr. Santosh Ghuge)
(Member)

(Mr. Nilesh Ukunde)
(Member)

(Dr. B. V. Rao)
(Chairman)

CONTENTS

Preface

The news of devastating explosion that occurred on 30th June 2025 morning at Sigachi Industries shook everyone in the nation. Some of the accident scenes were really bothering and every person who was watching the news was upset.

On 2nd July 2025, I received a call from my Director, CSIR-Indian Institute of Chemical Technology, Hyderabad, to inform me that I have been nominated as the Chairman of the Technical Expert Committee to investigate the causes of the accident along with three other colleagues from the CSIR National Laboratories. These are, Dr T. Prathap Kumar, Chief Scientist, Group Leader-Process Development, Process Design and Process Safety, at CSIR-IICT, Hyderabad; Dr M. Surianarayanan, Scientist (Retired), Former Head-Cell for Industrial Safety and Risk Analysis (CISRA), CSIR-CLRI, Chennai; and Dr. Santosh Ghuge, Senior Principal Scientist, Chairman-Safety Committee, CSIR-NCL, Pune. I was stunned and skeptical about our responsibility to investigate from only the debris available at the accident site, as I saw from the media reports. However, I had to accept the orders of our Director. On receiving the formal orders from the Government of Telangana and a kick off meeting with the Principal Secretary, Labour, Employment Training & Factories, Sri. M Dana Kishore, IAS, Government of Telangana, I proceeded with the team on 3rd July 2025 to the accident site to witness the devastation and the furious of Chemistry. The accident site was cleared of all the debris and the damaged equipment, with no opportunities for any lead for causes of this devastating explosion. After discussion with the Sigachi people, workers undergoing treatment in the hospital, Government officials etc., my highly talented colleagues could analyze it as dust explosion and gave the lapses and some recommendations in their interim report on 7th July for the Government to act quickly. Telangana Government asked us to submit the final report as soon as possible.

Later on, on 7th July, Principal Secretary, Sri. M Dana Kishore, IAS, Labour, Employment Training & Factories, Government of Telangana, inducted Fire and Explosion Forensics Expert, Mr. Nilesh Ukunde, Chief Investigator of M/s. Forensic Fire and Cyber Investigators, Nagpur, to our team. After his inclusion and first introduction, we all members agreed unanimously to the idea that the investigation in such a critical and complex accident could be carried out only by using the principles of Fire and Explosion Forensics and accordingly we all started working on it.

I must honestly admit that Mr. Nilesh's inclusion in the Technical Committee has completely changed the dynamics of the investigation. His expertise in the field of Fire and Explosion Forensics have helped us in concluding this investigation with concrete evidences. I must appreciate the wholehearted, extensive travel, labor induced and intelligent work of fire and explosion forensics done by Mr. Nilesh Ukunde. He did not hesitate in taking huge physical risk also at the very dangerous site for gaining the evidences. I'm amazed at his general investigations' skills also. It also helped us to gather a lot of critical and important data for the report which helped the colleagues in quantifying the details in a scientific way.

The overall investigation process was a difficult one, albeit it was a good learning experience too. I realized the potential of the fire and explosion forensics engineering and science to arrive at the root cause from studying the signatures of overpressure and heat on the remnants of the structure at the site as well as from the videos and photographs using the drone taken

immediately by the Telangana Governments first responders. We had several brainstorming sessions both in person and in online mode several days. Finally, I believe, that the root cause arrived at, by the team is scientifically convincing. I thank my colleagues for their dedicated efforts, travel and visit to the dangerous accident site for several days. The expert committee visited the site and other sites of the same industry at Gujarat to assess the process, its operation and reviewed its functional safety. I also thank Dr Prathap who also made visits to Gujarat and taken physical risk going around the debris and remnant structure and adjacent places along with Mr Nilesh to get the evidence.

The report carries recommendations for similar type of industries to prevent the recurrence of such accidents. I am confident implementing these recommendations will improve the overall safety of the industries that produce and handle combustible dusts.

Safety is not a destination, it is a voyage. Being cautious and responsible, we can prevent devastating accidents of this kind.

I thank everyone for their cooperation in allowing us to complete this investigation to a conclusion.

Dr. B. V. Rao, Former Emeritus Scientist, CSIR-IICT
Chairman
Technical Expert Committee
Date: September 4, 2025

Acknowledgements

The Technical Expert committee gratefully acknowledges Hon'ble Chief Secretary, Sri K. Ramakrishna Rao, IAS, Government of Telangana, and the Principal Secretary, Sri M. Dana Kishore, IAS, Labour, Employment Training & Factories, for contacting the Director, CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Dr. D. Srinivasa Reddy, for nominating a team of Scientists for investigating the brutal incident of explosion and fire that killed 54 innocent workers of M/s. Sigachi Industries Limited in the morning of 30th June 2025.

The Technical Committee also gratefully acknowledges Hon'ble Chief Secretary, Sri K. Ramakrishna Rao, IAS, Government of Telangana, and the Principal Secretary, Sri M. Dana Kishore, IAS, Labour, Employment Training & Factories, Government of Telangana, for inducting Fire & Explosion Forensic Expert from Nagpur, Mr. Nilesh Ukunde, as an expert member of the committee.

It was indeed a challenging and difficult task to investigate the root cause of this accident as everything including humans, buildings, equipment, material etc. were literally shattered into pieces. Due to the priority from rescue perspective, the District Administration had removed and shifted almost all of the material, equipment, debris from the site of the accident to a nearby designated open industrial plot. It was virtually an empty open space at the accident site when the investigation started. Mr. Nilesh Ukunde's expertise in Fire and Explosion Forensics have truly helped us to conclude this complex investigation with concrete physical and scientific evidences.

Special thanks go to Director, CSIR-IICT, for allowing the committee to use the various infrastructure facilities of CSIR-IICT such as the Guest House, Lecture halls, Canteen and transport for local trips.

Expert Committee wishes to place its heartfelt thanks to Sri K Ramakrishna Rao, IAS, Chief Secretary, Government of Telangana, and Sri M Dana Kishore, IAS, Principal Secretary,

Labour, Employment Training & Factories, Government of Telangana, for giving full freedom for carrying out this investigation without any interference at all from any part of Administration.

The Committee expresses special thanks to Sri Y. Nagi Reddy, IPS, the Director General of Fire Services, Government of Telangana, Collector, Sangareddy District, Ms. P. Priyanka, IAS, and Superintendent of Police, Sri Paritosh Pankaj, IPS, for their great support.

The Committee gratefully acknowledges the ready help in CFD Simulations for combustion dust modelling of Micro Crystalline Cellulose in FLACS DustEx by Mr. Sastry Mangipudi, Chief Executive Officer, PS & RM Advisory, CME Private Limited, and his team members Mr. Anil Avvari, Mr. Ankit and Mr. Kalpesh.

The Committee also sincerely acknowledges the Principal, Mepco Schlenk Engineering College, Sivakasi, and Prof P Nagaraj, Dr Azhagurajan and Mr. Baskar for testing the Micro Crystalline Cellulose for impact and friction stimuli.

Expert Committee also thanks the Directorate of Factories, Government of Telangana, and their department members, for effective coordination and support they provided to the Expert Committee during the investigation.

Expert Committee also gratefully appreciates the help provided by the State District Administration, the Police, NDRF, SDRF, Local Fire Department of Association of Industries, various Hospital Management authorities, Doctors, Paramedical staffs etc.

The Expert Committee sincerely thanks the Management of BHEL, Ramachandrapuram, Hyderabad, and the Management of M/s. Virupaksha Organics Limited, Hyderabad, for generously allowing us to use their facilities. Special thanks to M/s Virupaksha Organics Limited, for providing CCTV footages.

Abbreviations

Abbreviation	Full Form
AHU	Air Handling Unit
AMD	Air Moving Device
AMS	Automatic Material Systems
ASTM	American Society for Testing and Materials
CEIG	Chief Electrical Inspector to the Government
CFE	Consent for Establishment
CFR	Code of Federal Regulations
COB	Change Over Bench
CP	Chlorinated Paraffin
CSIR - IICT	CSIR - Indian Institute of Chemical Technology (IICT)
CSIR - CLRI	CSIR - Central Leather Research Institute
CSIR - NCL	CSIR – National Chemical Laboratory
DM	Demineralized
DHA	Dust Hazards Analysis
FG	Finished goods
FLACS	FLame ACceleration Simulator
GI	Galvanized Iron
GLRs	Glass Lined Reactors
HAG	Hot Air Gas
HAZOP	Hazards and Operability
HVAC	Heating, Ventilation, and Air Conditioning
HYDRAA	Hyderabad Disaster Management and Asset Protection Agency
JSA	Job Safety Analysis
EHS	Environment, Health and Safety
FBD	Fluidized Bed Dryer
FG	Finished Goods
LDPE	Low Density Polyethylene
MIE	Minimum Ignition Energy
MEC	Minimum Explosible Concentration
MITC	Minimum Ignition Temperature of Cloud
MITL	Minimum Ignition Temperature of Layer
MSIHC	Manufacture, Storage and Import of Hazardous Chemicals
LOC	Limiting Oxygen Concentration
MSDS / SDS	Material Safety Data Sheets/ Safety Data Sheets
MCC	Micro Crystalline Cellulose
NBC	National Building Code
NFPA	National Fire Protection Association
NGO	Non-Governmental Organization
NDRF	National Disaster Response Force

OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Administration
PPEs	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
RCC	Reinforced Concrete
SDRF	State Disaster Response Force
SFD	Spin Flash Dryer
SOP	Standard Operating Procedures
SPD	Spray Dryer
TEC	Technical Expert Committee
TSPCB	Telangana State Pollution Control Board

Executive Summary

M/s Sigachi Industries Limited:

M/s Sigachi Industries Limited was started as Sigachi Chloro Chemicals Private Limited in the year 1989 manufacturing various grades of Chlorinated Paraffins (CP) at the present accident site at Plot No. 20–21, IDA Phase-I, Pashamylaram, Patancheru Mandal, Sangareddy District, Telangana.

In the year 1994, the Company ventured in to production of MCC, catering to both pharmaceutical and food-grade requirements. The Company also has established manufacturing plants at Dahej and Jhagadiya in Gujrat for manufacturing of MCC. Company went public in 2019 and changed its name to Sigachi Private Limited.

Total turnover of MCC production of Sigachi group produces about 14000 MTPA of MCC. Pashamylaram Plant contributes the highest at about 6000 MTPA, Dahej contributing about 4500 MTPA and Jhagadiya plant manufacturing about 3500 MTPA of MCC.

The Accident:

On 30th June 2025 (Monday), at about 9:25 AM, a major explosion occurred at M/s Sigachi Industries Limited, located at Pashamylaram, Patancheru Mandal, Sangareddy District, Telangana. The explosion was so intense that it caused the collapse of the building structure including several key areas of the industry.

At the time of the incident, a total of 143 workers and 3 Security staff were present at the site. Tragically, 54 workers lost their lives including 8 workers whose bodies got vanished due to huge heat generated in the fire.

Constitution of the Technical Expert Committee:

After the accident, the Principal Secretary, Labour, Employment Training & Factories, Government of Telangana, contacted Director, CSIR-Indian Institute of Chemical Technology (IICT) for constituting a Technical Expert Committee to conduct a comprehensive investigation of the incident and submit a detailed technical report along with appropriate recommendations.

The Four member Committee was constituted on 2nd July 2025, and a Fifth member from the field of Fire and Explosion Forensics was inducted by Principal Secretary, Labour, Employment Training & Factories, Government of Telangana, on 7th July 2025.

Investigation of the Accident:

The Committee visited the Pashamylaram plant site many times from 3rd July 2025 onwards, interacted with personnel from various departments of Sigachi Industry and tried to understand the manufacturing process of Micro Crystalline Cellulose (MCC). The Committee also went to Dhruva hospital and interacted with injured workers who were in a condition to speak.

When the Committee initiated the investigation, it was realized that during the search and rescue operations for the trapped workers, the District Administration removed all of the damaged and affected equipment/machinery, and debris, and shifted them all to a nearby designated vacant industrial plot. At the accident site, no process equipment was available at its place. The accident site was cleared of all the damaged equipment and the debris, with no opportunities for any lead for causes of the incident. Even by the time of the first visit of the Committee to the site on 3rd July, the accident site was already reduced to an open plot with only the skeleton of the damaged building standing there on.

Use of Fire and Explosion Forensics principles:

Considering the complexities involved and the situation that everything was reduced to ash and every remnant was removed and shifted, the Committee on 9th July unanimously decided to investigate the matter using Fire and Explosion Forensics principles.

The Committee studied the accident site as well as searched the debris dumped in the open industrial plot for various clues. The equipment/machinery parts extracted from the debris, fire and explosion signatures observed at the accident, and videos and pictures captured by the District administration using drone camera were of immense use. The Committee examined and analyzed these evidences in detail.

The Committee studied the burnt and affected equipment/machinery and all other material that were lying in the debris at the designated industrial plot for analysing the flow and impact of

heat and overpressure wave generated in this incident. The Committee tried to identify various unit operations equipment in the debris with the help of production/maintenance team of Sigachi, help of JCBs and Crane was also taken for segregating the material. The Committee also studied in detail the signatures of fire, smoke and explosion on the remnant structure available at the site. The detailed analysis of the evidences gathered using Fire and Explosion forensic engineering principles ultimately led to the identification of the root cause of this explosion.

During the course of the investigation, the Committee interacted with the District Administration, Fire brigade, SDRF, NDRF, Police, Government Medical Doctors and other Government officials, and understood the gravity of the accident and the hard work these people put in in trying to save the lives of the workers. During the course of discussions with these rescuers, Committee understood the huge impact of the explosion overpressure wave and the intense heat that got generated in this fire.

In order to understand the process and the equipment functions in the manufacturing process of MCC in detail, and also to know the hazards involved and the safety measures in place in these plants which resemble the working of the Sigachi's Pashamylaram plant, the Committee visited Sigachi's MCC manufacturing plants at Jhagadiya and Dahej in Gujarat.

After forensically understanding that the cause of initiation of this accident of fire and explosion could be the Sealing Machine used in the Packing room, the Committee visited the Sealing machine manufacturer and supplier in Ahmedabad, and thereafter revisited Sigachi's Jhagadiya plant to witness the of working and the hazards associated with the operation of the Sealing machine used in the Packing area. The Committee took practical demonstrations of the working of the Sealing machine at Jhagadiya plant. The Sealing machine used in Jhagadiya and that was being used in Pashamylaram were the same models.

In the accident, a huge explosion wave accompanied with flying fire objects in the form of projectiles flung in air and fell in surrounding areas. The explosion wave was so intense that it fragmented roofs and walls of the Packing area, Blender 2, Pulverizers 1 & 3, FBDs 5, 2 & 3, and wall behind all FBDs. The towering fire flames and huge cloud of smoke erupted could be seen from miles away. A huge ball of fire of above 25 m height and of similar width was seen erupted

along with the explosion wave. The Spray Dryer (SPD) collapsed 2-3 seconds after the explosion. Structure of Filter Presses 1 & 2 also collapsed.

The RCC columns of Packing area, SPD area, Blender 2, Quarantine area, Metal Detector area, Day FG area, and Pulverizers 1 & 3 got uprooted and thrown away. Due to this, the entire structure on the First floor above Packing area, SPD area, Blender 2, Quarantine area, Metal Detector area, Day FG area, and Pulverizers 1 & 3, i.e. Quality Control (QC) area (Media preparation room, Autoclave room, Microbiology room, Powder analysis room, Change room etc.) and Quality Assurance (QA) area (GM QA/RA office, QA office, QA document room, Stability chamber area, Chemical store room, Slated angle racks room, the passage etc.), sank and settled above the remnants of the walls of the Ground floor areas below them.

The GI shed above the GM QA/RA office, QA office and QC lab entrance area were seen flung in air immediately after explosion. The GI sheets covering the top portion of the Spray Dryer are seen intact for about 2 to 3 seconds after the explosion. They fell as an integral assembly when the Spray Dryer collapsed after 2-3 seconds of this explosion. There was no internal damage to the Spray Dryer, a little external impact damage was observed to the Spray Dryer.

The roof above FBDs 1 & 4, Spin Flash Dryer (SFD) area including the staircase and all the separating walls in this area collapsed due to the explosion over pressure wave. The column on the southwest side of Pulverizers 2 & 4 got drifted towards southwest side and it touched another column standing beside it. Because of drifting of this column, the beam on this column got dislocated and the roof on this beam became cantilever. On the southeast side of this beam portion, Filter Presses 1 & 2 were located, and also hanging on this roof from below was the Screw conveyer of the SFD. Due to heavy load in this area of Filter Presses 1 & 2, the slab collapsed.

The fire ball projectile generated from the explosion initiated fire in the Engineering stores/HR building. Another fire ball projectile initiated fire in the north open area where equipment for the new project were placed under a tarpaulin, and also Sodium Chlorite drums were seem to be placed in this area.

After the first huge explosion, another small intensity explosion must have taken place in the open area where equipment for the new project were placed under a tarpaulin. A huge intense

fire initiated there, engulfing a wide area covering the undamaged parked car of Vice President, Manufacturing. He got severely burnt and charred because of this fire. Four more workers also got their bodies burnt and charred in this area.

At the time of the incident, a total of 143 workers and 3 Security personnel were present at the site. Tragically, 54 workers lost their lives including 8 bodies which got vanished in this fire and explosion. Out of 36 workers who were admitted into various hospitals, 8 workers had died (on the way to the hospital/during treatment), 25 workers were discharged and 3 workers were still undergoing treatment at the time of writing this report.

Analysis of the Accident:

After analyzing the photos, videos and the CCTV footages received from various sources, viz. drone camera, fire brigade, NDRF, SDRF and M/s Virupaksha Organics Ltd., it was identified that the worst explosion impact in terms of shattering of the roof and the walls happened in the Packing area.

The slab of the Ground floor above the Packing area near and around the Sealing machine got completely fragmented. The GI sheets roof on the first floor above this portion was also blown off in this explosion.

Two columns, one at Blender 1 and one at Pulverizers 2 & 4 area, got drifted towards northwest and southwest directions respectively. The wall between the Packing area and that the Spray dryer (SPD) got drifted towards northwest side, away from the Packing area.

Due to the explosion overpressure wave, the wall between the Packing area and bottom of the SPD got collapsed towards northwest direction, and the SPD also got flung into air into the northwest direction and collided against the wall of QC on the First floor. The wall on the northwest side of the SPD (between SPD and Dispatch Goods godown) also got shattered outward towards northwest side due to the same overpressure wave.

The walls behind FBDs got shattered and blown away outward towards southeast direction. The structure of Pulverisers 1 & 3 got completely shattered and the same pressure wave even shattered the wall of Utility area behind Pulverisers 1 & 3. The walls and roof of Blender 2 also got shattered. The walls of the Quarantine and Day FG area also got shattered outward.

All the goods and the equipment lying in the dispatch area and around, got thrown away towards the northwest direction. The GI shed of the Dispatch Goods area got hugely pushed away towards north side towards Engineering stores/HR building. The wall compound behind ETP/HR building got shattered outward and the employee bus which was parked here also got affected due to the explosion wave badly.

About 47 deaths that occurred because of burning were observed in an area surrounding the Sealing machine (Packing area, SPD area, FBD area, Blender 2, Day FG area, Metal detector area, and Pulverizers 1 & 3 area). Out of these, 26 persons died in an area of 750 sq. ft. only which is the area surrounding immediately the Sealing machine. One or more parts of the bodies of almost all the victims were amputated as evidenced in the postmortem report (Annexure14: Analysis of injuries to the dead workers).

Given the huge quantity of above 17 Tons of easily combustible MCC material available in the packing room at the time of the accident and its easy burning characteristics, a temperature of about 900-1000^{o}C and a heat flux of about 25-30 kW/m^2 was easily reached in the packing room. This was the prime reason for severe burning of workers and even for evaporation of bodies of 8 workers. Out of these 8 workers, 2 were from Packing area, 3 were from QA area sitting just above the Packing-FBD 3 areas, 1 was from Blender 1 and 1was from Pulverizer 4 area. Moreover, due to explosion, the floor first floor above the packing area got shattered and the rest of the areas sank in completely and settled on the ground floor debris. All this happened within seconds and people had no chance to come-out and save themselves.

In the CCTV footage provided by Virupaksha, it is clearly seen that the GI sheet shed of the QA area (First floor) immediately above the Packing area got flung into air. It is also clearly seen that some structural parts are also flung into air due to this explosion. It is also clearly seen that a huge ball of fire got erupted from the Packing area. The flame height of this fire ball is seen to be above 25 m. In the same footage, it is seen that the fire was a very wide one exhibiting that the explosion and the fire had covered a huge area.

Basic Reason for fire and explosion:

In the month of April 2025, a new GLR 5 of 5 kL capacity was commissioned. The production prior to March 2025 was in the range of 5-5.5 tons per shift, but increased to average of 6.5 tons per shift in June 2025. From the employees' attendance list, it was observed that there was increase in manpower intake, so the density of workers was also increased.

For increased production, company needed more manpower, and must have recruited them by compromising the qualification and experience criteria. This fresh manpower without having any experience were sent on the shop floor for working. These people were not at all provided any kind of operational/working/safety training.

Because of increased production, the maintenance of the equipment/machinery must have been compromised. Even the Sealing machine, which was the only one must have had to work with this increased load continuously. The house keeping must have also been compromised.

Given these activities in the last 3 months prior to the accident, i.e. increased production, use of increased untrained manpower, no maintenance of machineries, overtime working of the machinery and the manpower, and lack of safety culture, only an accident was waiting to happen, and ultimately happened on 30th June. Thus, the gross negligence on the part of the management is basically responsible for this explosion.

Cause of fire and explosion:

In the pursuit of increased production by the management, compromising all safety norms, a completely novice, untrained and uneducated workers were made to operate the highly hazardous Sealing machine.

As stated by the Packing Operator, Dinesh Patel, in his statement (Annexure 19) that he used to be provided three helpers every day by the Production department. He used to make these helpers operate Weighing, Sealing and Stitching machines respectively.

The fire must have got initiated because of burning of double layered LDPE bags during sealing operation on the Sealing machine. Due to burning of double layered LDPE bags a huge heat got generated which in turn burnt the outer HDPE bag. This generated still a huge heat and real flame of fire was produced. The Packing area was a confined and congested area, and dust

cloud of MCC was readily available. The flame thus generated ignited the dust cloud in the atmosphere of the Packing area which generated huge overpressure wave, and also due to the exponential decomposition and burning of huge quantity above 17 MT MCC powder lying in the vicinity huge heat was generated. Hence fire and Dust cloud explosion got initiated near the Sealing machine in the Packing room.

Lapses:

The entire civil structure of the plant was designed, constructed and commissioned as per the production planning done in 1994.

Many big, bulky and heavy equipment/machinery were added without adding any new civil structure in the subsequent years for the increase in the production. This was done by continuously altering the existing civil structure only. Because of the increase in production over the years, addition of new equipment/machinery and increase in the working manpower took place. Alteration in the same civil structure was done many times for replacing the old technology with new technology equipment. All this has happened in the same space that was available at the incipient stage of the plant in 1994. This was clearly reflected in the statement of Executive Vice Chairman, Mr Chidambaramnathan (Annexure: 21).

Due to the old civil structure and deletion and addition of old and new equipment/machinery respectively, there was vibration in the structure. This was confirmed by many employees and reflected in the statement of Golla Naresh, Chemist, QC (Annexure 15).

Additionally, critical aspects of safety such as adequate training, provision of PPEs, conduct of safety audits, availability of firefighting facilities, and regular mock drills were found to be severely lacking in this industry. The details on the Sigachi industry's poor safety culture are provided in Chapter V.

Recommendations:

Based on the investigation, the recommendations for similar type of industries which has the potential for combustible dust explosions are given in Chapter VI.

Risk analysis by competent person shall be done every year for Orange and Red category industries.

All electrical appliance and fittings in the dust atmosphere shall be flame/ explosion proof.

Dust extractors/ collectors shall be installed where ever production or release of dust in the atmosphere is there and the dust thus collected shall be treated for its safe disposal or reuse.

Proper Housekeeping must be maintained. Only approved vacuum cleaners shall be allowed for cleaning of the floors and equipment.

Although Indian Factory Act 1948 and Telangana Factory Rules 1950 has references for fire and explosion controls, but for dust explosion control, the NFPA® 660, Standard for Combustible Dusts and Particulate Solids, 2025 Edition, is exhaustive and should be referred.

CHAPTER I

Introduction

In the morning of 30th June 2025 (Monday), at about 9:25 AM, a major explosion occurred at M/s Sigachi Industries Limited, located in Pashamylaram, Patancheru Mandal, Sangareddy District, Telangana. The explosion was so intense that it caused the collapse of the building structure including several key areas of the industry such as the Packing area, Fluidized Bed Dryers (FBD) area, Quarantine area, Spray Dryer (SPD) Chamber area, Blenders 1 & 2, Dispatched Goods godown, Finished Goods godown, Pulverizers 1, 2, 3 & 4, Dust collector, Spin Flash Dryer (SFD) area located on the Ground floor. The first floor above the collapsed Ground floor, i.e. Quality Control (QC) and Quality Assurance (QA) areas etc., were shattered and collapsed.

At the time of the incident, a total of 143 workers and 3 Security staff were present at the site. Tragically, 54 workers lost their lives including 8 who were reported missing. Around 36 workers who sustained injuries and were taken to various nearby hospitals for treatment.

The industrial association fire brigade unit rushed to the spot immediately and started firefighting. State department fire brigades, along with teams from National Disaster Response Force (NDRF), State Disaster Response Force (SDRF), and Hyderabad Disaster Management and Asset Protection Agency (HYDRAA) promptly arrived at the scene and initiated rescue operations. Officials from the District Administration including those from the revenue, police, factories department, fire services and pollution control board visited the site and coordinated the rescue efforts.

Hon'ble Chief Minister, Government of Telangana, Sri A Revanth Reddy, visited the accident site on 1st July, 2025 to inspect the premises and review the ongoing rescue operations. He held a review meeting with district officials and interacted with the family members of the victims. Hon'ble Chief Minister also visited the injured at a hospital in Patancheru and offered complete support to those undergoing medical treatment. Hon'ble Chief Minister was accompanied by Hon'ble Minister for Health, Medical & Family Welfare, Science & Technology, Sri Damodar Raja Narasimha; Minister for Information Technology, Electronics & Communications, Industries & Commerce, and Legislative Affairs, Sri Duddilla Sridhar Babu;

Minister for Labour, Employment and Training and Factories, Sri Vivek Venkataswamy; and Minister for Revenue, Housing, Information and Public Relations, Sri Ponguleti Srinivas Reddy. District Collector, Superintendent of Police, and other senior officers were also present during the visit.

(a)

(b)

(c)

Figure 1.1 (a)-(c): Extent of structural and equipment damage at the accident site

Figure 1.2: Fire and smoke in the opposite open space

Figure 1.3: Firefighting operations to control fire spread

Figure 1.4 (a): Rescue operation

Figure 1.4 (b): Rescue operation and the grieving families

Figure 1.4 (c): Rushing of injured workers for immediate medical help

Figure 1.5: Fatalities at the accident site

Figure 1.6: Supervision of rescue operations by Minister, Senior District Government officials

(a)

(b)

Figure 1.7 (a) & (b): Visit of Hon'ble Chief Minister and Ministers of Government of Telangana

Figure 1.8: NGOs and supporting teams providing food relief to industry staff

1.1 M/s Sigachi Industries Limited

Sigachi Industries Private Limited (formerly Sigachi Chloro Chemicals Private Limited) was formed and incorporated on 11th January, 1989 as a Private Limited Company with the primary objective of manufacturing various grades of Chlorinated Paraffins (CP). The company established its manufacturing unit at Plot No. 20–21, IDA Phase-I, Pashamylaram, Patancheru Mandal, Sangareddy District, Telangana. The plant commenced operations in November 1990 with an initial installed capacity of 1,200 tons per annum.

In 1994–95, Sigachi started manufacturing Microcrystalline Cellulose (MCC) catering to both pharmaceutical and food-grade requirements. Sigachi went to Public Limited Company from Private Limited Company in December 2019 and consequently the name was changed to "Sigachi Industries Limited".

In addition to the Pashamylaram plant, Sigachi Industries Limited operates MCC manufacturing units at Jhagadiya and Dahej. The company has also expanded its market to Asia, Australia, the Americas, Europe, and the Middle East.

Figure 1.9: Google Earth Image of Sigachi Industries Limited and Surrounding Area

1.2 Constitution of the Technical Expert Committee (TEC)

After the accident, the Principal Secretary, Labour, Employment Training & Factories, Government of Telangana, contacted Director, CSIR-Indian Institute of Chemical Technology (IICT) for constituting a Technical Expert Committee to conduct a comprehensive investigation of the explosion and submit a detailed technical report along with appropriate recommendations for preventing such incidents in future. The following Committee was constituted on 2nd July 2025.

1. Dr. B. Venkateswar Rao, Emeritus Scientist, CSIR - Indian Institute of Chemical Technology (IICT), Hyderabad - Chairman
2. Dr. T. Prathap Kumar, Chief Scientist, CSIR – IICT, Hyderabad - Member
3. Dr. M. Surianarayanan, Retired Chief Scientist, CSIR - Central Leather Research Institute (CLRI), Chennai - Member
4. Dr. Santosh Ghuge, Senior Principal Scientist, CSIR - National Chemical Laboratory (NCL), Pune – Member

On 7th July, 2025, Principal Secretary, Labour, Employment Training & Factories, Government of Telangana inducted an Expert member in field of Fire and Explosion Forensics in the Committee:

5. Mr. Nilesh Ukunde, Forensic Fire and Explosion Investigator, Nagpur – Member

The Terms of Reference for the Committee are as follows:

- The Committee should identify the causes and establish reasons and the events that lead to the major explosion.
- The standard operation procedures (SOPs) for worker safety is followed or not in the industrial unit.
- Absence or lack of or violation of compliance of chemical and industrial processes that are required to be followed by the Company Management in the industrial unit.
- The Committee should suggest / recommend a way forward to avoid / prevent such incidents / events in future in similar chemical and pharma industrial units.
- The Committee shall examine the management staff and workers of the company and interact with various consultants / organizations / persons / Government officials as deemed fit, during its enquiry in the matter.
- The Director, Department of Factories, Government of Telangana shall act as the facilitator for the Committee for all requirements of the committee (**Annexures I & II**).

1.3 Past Similar Accidents

The Table 1.1 presents two similar recent accidents occurred globally in the last 5-6 years involving MCC or cellulose powder. The table also includes dust explosion initiated accidents occurred in chemical and allied industries recently in India

Table 1.1: List of Past Similar Accidents

Date / Country	Industry	Material	Equipment Involved	Dead / Injured	Ignition Source	Reference
Dust explosion accidents involving MCC / Cellulose powder						
December 01, 2022	Cellulose Manufacturing Facility, Gehren, Germany	Cellulose dust	Dust Collector	01 Injured	Not reported	Combustible Dust Explosion Report 2023 https://dustsafetyscience.com/dust-collector-explosion-gehren-germany/
April 26, 2018	Cellulose Processing Plant, Rosenberg, Germany	Cellulose dust	Unknown	07 injured	Shredder	https://dustsafetyscience.com/dust-fire-rosenberg-germany/
Dust explosion accidents in other chemical industries in India						
March 13, 2025	Chamundi Explosives Pvt. Ltd., Hingna, Nagpur	Gun Powder	Sealing Machine	6 Fatalities, 3 injured	High Voltage during sealing ignited the inner layer of packing and immediately dust explosion occurred	Investigated by the incumbent Member of the present Technical Expert Committee Mr. Nilesh Ukunde

April 11, 2025	MMP Industries, Umred, Nagpur	Aluminium Powder	Mixture	9 fatalities, 3 injured	Static electricity	Investigated by the incumbent Member of the present Technical Expert Committee Mr. Nilesh Ukunde
August 23, 2024	Synergene Active Ingredients Private Limited, Jawaharlal Nehru Pharma City of Parawada, Andhra Pradesh	Chemical powder	Reactor	17 Fatalities, 33 injured	Static electricity	https://www.thehindu.com/news/national/andhra-pradesh/at-least-4-dead-33-injured-in-reactor-blast-at-pharma-company-in-anakapalli/article68551543.ece
March 16, 2024	Life Long India, Dharuhera, Rewari, Haryana	Aluminium dust	Dust Collector	19 Fatalites and 60 injured	Spark from buffing machine	https://www.tribuneindia.com/news/haryana/dharuhera-factory-blast-that-killed-16-was-caused-by-spark/

June 30, 2023	Sahiti Pharma plant, Atchutapuram SEZ, Anakapalli, Andhra Pradesh	Solvent vapours	Reactor	06 fatalities	Electric short circuit	https://www.hindustantimes.com/india-news/worker-killed-in-blast-at-chemical-reactor-in-andra-padesh-s-anakapalle-101721217724105.html
August 19, 2022	Parry Sugar Refinery Industry, Kakinada, Andhra Pradesh	Sugar dust	Conveyor / Packing Area	02 fatalities		https://timesofindia.indiatimes.com/city/visakhapatnam/andhra-pradesh-two-dead-9-injured-in-sugar-factory-explosion-in-kakinada/articleshow/93672098.cms
October 29, 2021	Pharmaceutical Plant, Baddi, Himachal Pradesh	Unknown	Dryer	05 injured	Short Circuit	https://www.tribuneindia.com/news/himachal/blast-in-baddi-pharma-unit-five-workers-hurt-331727/

CHAPTER II

Process and Plant Details

2.1 Manufacturing Process Details

M/s Sigachi Industries Ltd. is producing different grades of Micro Crystalline Cellulose (MCC) ranging from 50 microns to 90 microns.

The Micro Crystalline Cellulose (MCC) is manufactured from imported Wood pulp (Alpha cellulose) sheets. The manufacturing process is as follows.

1. Cutting the Wood pulp sheets:

The QC approved wood pulp is indented from the stores. The batch size is around 450-500 kg wood pulp. They are carrying out around 50 batches per day. The Wood pulp (Alpha cellulose) sheets of around 1000 mm x 500 mm size are cut into 4 pieces, and transferred to Glass lined reactors (GLRs) area.

2. Hydrolysis reaction:

The Hydrolysis reaction is carried out in GLRs. There are 5 GLRs of 5 kL capacity each on the 1st Floor. Firstly, the required quantity of around 3500 lt of DM water is charged into the reactor. The DM water is heated to around 80°C using live steam at 3 kg/cm^2. Next 10 lt of HCl solution is added to the reactor under stirring. Then around 450 kg of the cut wood pulp sheets are added to this solution. The temperature is increased to around 110°C. The reaction is carried out at this temperature for about 60 minutes. The reaction mass is visually monitored for complete hydrolysis. Then the reaction mass is cooled to 80°C through cooling water in the jacket. The reaction mass is sent to filter press.

3. Filtration:

The reaction mass is filtered using Filter presses. There are 5 Filter presses in the 1st Floor. The cake is washed with DM water and dilute Ammonia solution to ensure pH is neutral and conductivity is within the desired range. The wet cake is sent for drying.

4. Drying:

The wet cake with around 50% moisture is dried in 3 ways using i) Fluidized Bed Dryers (FBDs), ii) Spin Flash Dryer (SFD), and iii) Spray Dryer (SPD).

i) Fluidized Bed Dryers (FBDs): There are 5 FBDs (FBD 1: 70 kg/h, FBD 2: 100 kg/h, FBD3: 100 kg/h, FBD 4: 200 kg/h, FBD 5: 100 kg/h capacity) in the Ground floor. Hot air from HAG with a maximum temperature of 180^{o}C is used to dry the wet cake. The dried material is sent to Pulverizers for grinding. From Pulverizers it is then send to Blenders for blending (mixing).

ii) Spin Fash Dryer (SFD): The wet cake is broken in Cake breaker and fed to SFD. The product rate is around 200 kg/h. Hot air from HAG with a maximum temperature of 150^{o}C is used for drying. The powder is sieved in Sifter and sent to Blenders for mixing.

iii) Spray Dryer (SPD): The wet cake is taken into Blunger tank and transferred to Slurry preparation take where 20% slurry is prepared. This slurry is transferred to Feed tank, and fed into Spray dryer through atomizer. Hot air from HAG with a maximum inlet temperature of 200^{o}C is used for drying, temperature at the outlet is around 80^{o}C. The Spray Dryer system consists of Spray Dryer chamber, Cyclone separator and Scrubber. The product rate is around 100 kg/h. The Spray Dryer chamber is of 5 m diameter, 6 m straight height and 2 m conical section height. The product from spray dryer chamber and cyclone separator is sieved in Sifters and sent to Blenders for mixing.

5. Pulverizing:

The material from FBDs is ground in Pulverizers. There are 4 Pulverizers (Pulverizer 1: 100 kg/h, Pulverizer 2: 100 kg/h, Pulverizer 3: 150 kg/h, Pulverizer 4: 200 kg/h capacity) on the Ground floor. The material from Pulverizers is sieved in Sifters and sent to Blenders for mixing.

6. Blending:

The material after drying, pulverizing (from FBDs) and sieving, is blended in Blenders. There are 2 Blenders of 1ton capacity each. The blended material is sieved through 2 Sifters and sent for packing after QC check.

7. Packing (Weighing, Sealing and Stitching):

The material from blender sifters is weighed as 20 or 25 kg in 3 layers bags. The inner double LDPE layers is sealed using a heat sealing machine and the outer cover of HDPE bag is stitched.

8. Quarantine:

The packed product is transferred to the Quarantine room. After QC approval and QA release, it is passed through Metal detector, and finally sent to Day Finished Goods godown for dispatch and distribution.

2.2 Micro Crystalline Cellulose (MCC) Properties

- Particle Size: 20-200 micron
- St 1 Class dusts (Moderate Explosion Risk)
- Explosion severity measure (Kst), Deflagration Index: 68-192 bar.m/s
- Rate of Pressure rise (dP/dt): 250-709 bar/s
- Maximum Pressure (Pmax) (20 L Explosion severity): 7.3-8.8 bar
- Minimum Explosion Concentration (MEC): 55-85 g/cu.m
- Minimum Ignition Temperature (MIT): 470° C
- Minimum Ignition Energy (MIE): 25 mJ*
- Temperature Class: T3 (the maximum surface temperature of equipment must not exceed 200°C (392°F)).

(Procedia of Multidisciplinary Research, 1(9), 23, Procedia of Multidisciplinary Research Article No. 23 Vol. 1 No. 9 (September 2023))

*Annexure 12: Incident report by M/s Sigachi Industries Limited.

2.3 Plant Details

The MCC Plant was having Ground floor, First floor and Terrace (**Plant drawings Figures 2.1, 2.2 & 2.3, and Master Plan Figure 2.4**).

1. The Equipment and Working areas on the Ground floor were approximately as follows:

Section	**Description of Area**	**Dimensions, m**	**Area, m^2**	**Area, ft^2**	**Remarks**
1.	Packing area, Day Finished Goods area, FBDs, Pulverizers, Dispatch area etc.	36.60 x 20.75	759.45	8170.47	Total area Collapsed except Blender I, 3/4th Pulverizers 2 & 4 area and Package material entry area
2.	Entrance to production area, Part of cutting area etc.	14.949 x 4.80	71.76	771.97	
3.	GLRs bottom, Storage tanks area etc.	21.44 x 10.00	214.40	2306.60	Stocked material of MCC caught fire, fire was extinguished.
	Total		**1045.61**	**11249.04**	

2. The Equipment and Working areas on the First floor were approximately as follows:

Section	Description	Dimensions, m	Area, m^2	Area, ft^2	Remarks
1.	QC & QA area, Filter presses 1, 2 & 4 area etc.	36.60 x 15.80	578.28	6221.37	Total QC & QA area Collapsed, Filter presses 1 & 2 floor Collapsed
2.	GLRs, Filter presses 3 & 5 area etc.	21.40 x 10	214.40	2306.60	
3.	Cut wood pulp Storage, Change rooms etc.	14.949 x 9.71	145.15	1561.63	
	Total		**937.83**	**10089.60**	

3. On the Ground floor, in the **Section 1: Packing, Finished, FBDs, Pulverizers, Dispatch area etc. (8170.47 ft^2),** the Equipment and Working areas were approximately as follows:

S. No.	Description	Dimensions, m	Area, m^2	Area, ft^2	Remarks
1.	Blender 1 with 2 Sifters	5.00 x 4.635	23.18	249.33	Though standing, walls were broken, roof was shattered
2.	Packing area	7.964 x 4.635	36.91	397.13	Total area Collapsed, roof shattered. Huge fire and temperature.

					Maximum deaths in this area.
3.	Blender 2 with 2 Sifters	4.62 x 3.435	15.87	170.73	Total area Collapsed
4.	Quarantine room area (Quarantine room, Secondary dryer with sifter, Sitting area, Metal detector)	5.338 x 4.165	22.23	239.19	Total area Collapsed
5.	Spray Dryer Chamber area (Spray Dryer Chamber, SPD Cyclone, Sifters, Airlock)	6.835 x 5.338	36.48	392.52	No internal damage to the Spray Dryer because of fire and explosion. Total area Collapsed
6.	Packing material entry, COB area (Packaging material entry, COB, Secondary CHR, Passages, Hatch box)	5.338 x 5.00	26.69	287.14	Though standing, walls were broken, roof was shattered
7.	FBDs area	17.244 x 4.872	84.01	903.84	Total area Collapsed
8.	SFD, Dust collector area	9.949 x 4.872	48.47	521.48	Total area Collapsed

9.	Pulverizers 2 & 4 area	9.973 x 9.949	99.22	1067.46	1/4th Roof Collapsed, 3/4th roof was shattered and walls were broken
10.	Pulverizers 1 & 3 area	8.556 x 4.872	41.68	448.46	Total area Collapsed
11.	Finished Godown	9.973 x 8.556	85.33	918.00	Total area Collapsed
12.	Dispatched Goods Godown	20.80 x 4.885	101.61	1093.14	Total area Collapsed
13.	Storage tanks area	4.885 x 9.949	48.60	522.87	Though standing, walls were broken, roof was shattered

4. On the First floor, in the **Section 1: QC & QA area, Filter presses 1, 2 & 4 area etc. (6221.37 ft^2),** the Equipment and Working areas were approximately as follows:

S. No.	**Description**	**Dimensions, m**	**Area, m^2**	**Area, ft^2**	**Remarks**
1.	QC & QA area	22.60 x 11.00	248.60	2674.54	Total area Collapsed
2.	Filter presses 1, 2 & 4 area	15.865 x 9.949	157.84	1106.50	1 & 2 Filter presses Floor Collapsed

5. Out of the 11249.04 ft^2 approximate total Equipment and Working area on the Ground floor, around an area of about 5465.49 ft^2 (48.59%) was totally collapsed.

6. Out of the 21338.64 ft^2 (11249.04 + 10089.60) approximate total Equipment and Working area on the Ground floor and 1st floor, around an area of about 11686.86 ft^2 (54.77%) was totally collapsed.

7. Though the Blender 1 area, Packing material entry area and Pulverizers 2 & 4 area (1/4th roof collapsed) Ground floor roof, and the 1st floor roof above these is standing, the roof was shattered and walls were broken.

Figure 2.1: Plant before Accident

2.4 Plant Drawings

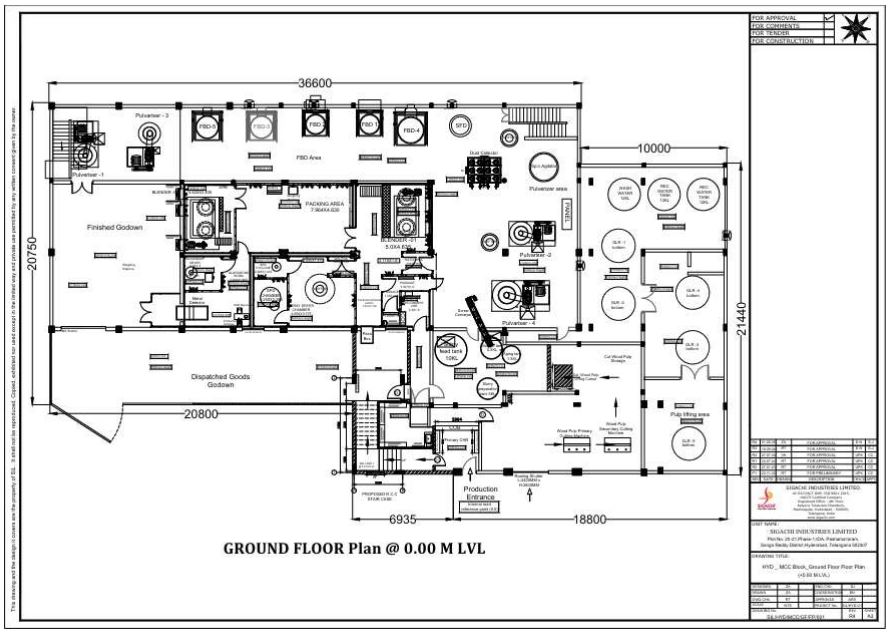


Figure 2.2: Ground Floor

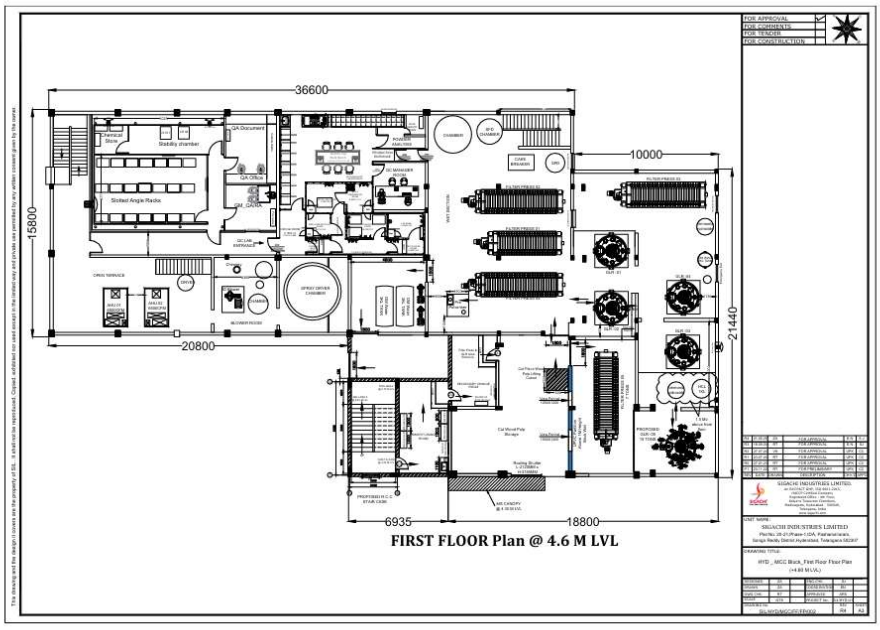


Figure 2.3: First Floor

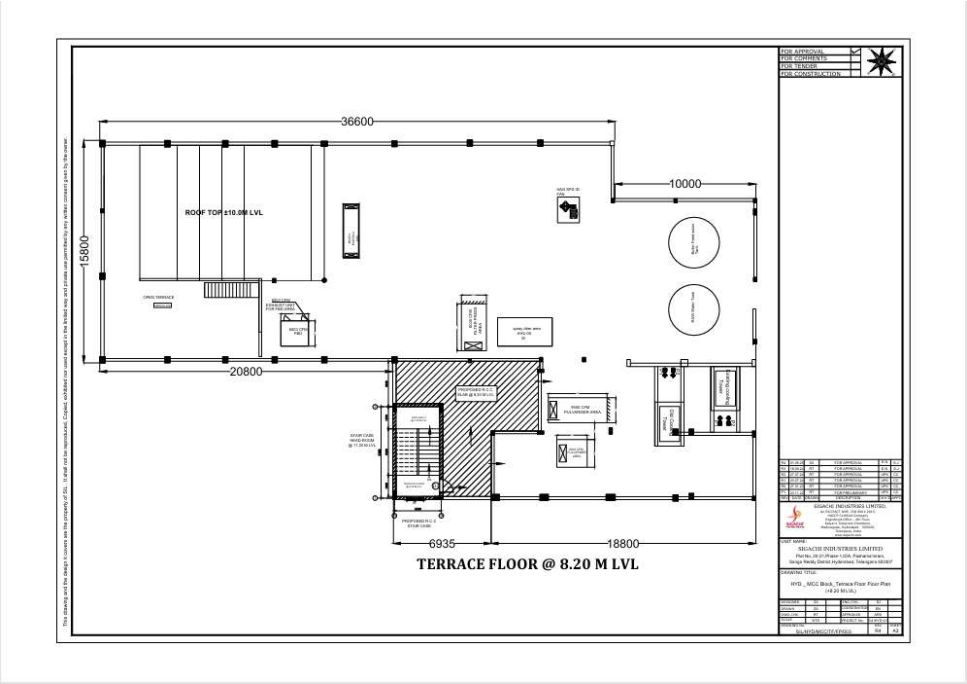


Figure 2.4: Terrace

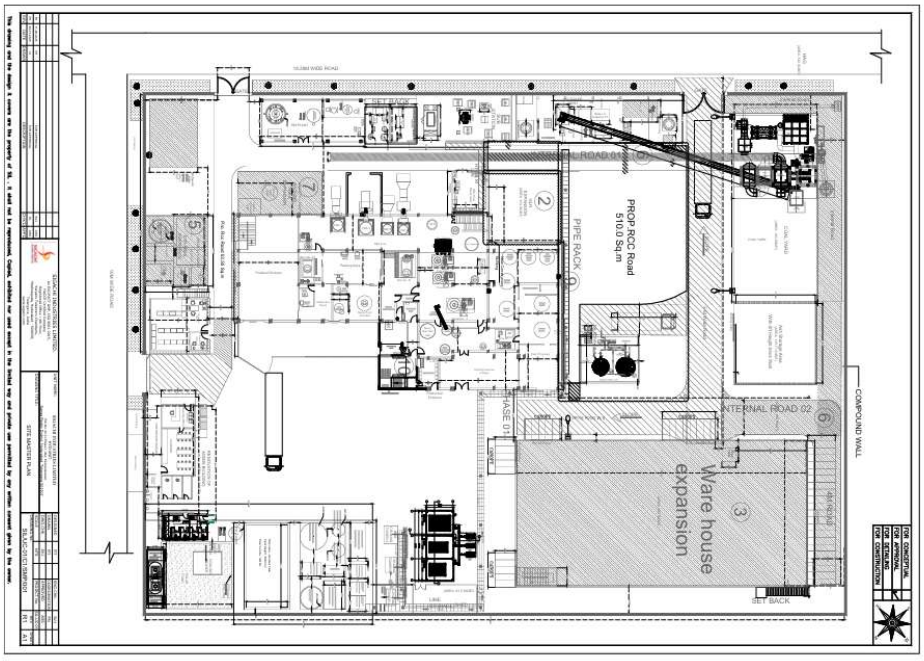


Figure 2.5: Master Plan

CHAPTER III

Investigation of the Accident

M/s Sigachi Industries Limited is situated at Pashamylaram, Patancheru Mandal, Sangareddy District, Telangana. They were manufacturing Micro Crystalline Cellulose (MCC) powder and Powdered cellulose, and the approved maximum production capacity of the plant is 25.2 tons per day (**Annexure 3: PCB document**). At the time of the incident, a total of 143 workers (1st Shift plus General Shift) and 3 Security staff were present at the site. This plant is the oldest of all the Sigachi plants, and was commissioned in 1994.

3.1 Description of the Accident

In the morning of 30th June 2025 (Monday), at about 9:25 AM, a major explosion occurred at Pashamylaram plant of Sigachi Industries. A huge explosion wave accompanied with flying fire objects in the form of projectiles flung in air and fell in surrounding areas.

The explosion wave was so intense that it literally fragmented roofs and walls of the Packing area, Blender 2, Pulverizers 1 & 3, FBDs 5, 3 & 2, and wall behind all FBDs. The Spray Dryer (SPD) collapsed after 2-3 seconds of the explosion. Filter Presses 1 & 2 also collapsed (**Figures 3.2 (a)-(d)**). The towering fire flames and huge cloud of smoke erupted could be seen from miles away (**Figure 3.1**).

Figure 3.1: Fire and Smoke of the Accident

(a)

(b)

(c)

(d)

Figures 3.2 (a)-(d): Devastation of the Accident

The RCC columns of Packing area, SPD area, Blender 2, Quarantine area, Metal Detector area, Day FG area, and Pulverizers 1 & 3 got uprooted and thrown away. Due to this, the entire structure on the First floor, above Packing area, SPD area, Blender 2, Quarantine area, Metal Detector area, Day FG area, and Pulverizers 1 & 3, i.e. Quality Control (QC) area (Media preparation room, Autoclave room, Microbiology room, Powder analysis room, Change room etc.) and Quality Assurance (QA) area (GM QA/RA office, QA office, QA document room, Stability chamber area, Chemical store room, Slated angle racks room, the passage etc.), literally sank-in and settled above the remnants of the walls of the Ground floor areas below them.

The GI shed above the GM QA/RA office, QA office and QC lab entrance area were seen flung in air immediately after explosion. The GI sheets covering the top portion of the Spray Dryer are seen intact for about 2 to 3 seconds after the explosion (Video 1: CCTV footage from M/s Virupaksha Organics Ltd.). They fell as an integral assembly when the Spray Dryer collapsed after 2-3 seconds of this explosion. There was no internal damage to the Spray Dryer. But there was a damage which was an external one that occurred due to its collision against the wall behind it because of its swinging after receiving impact of the overpressure wave. A huge ball of fire of above 25 m height and similar width was seen erupted along with the explosion wave.

The roof above FBDs 1 & 4, Spin Flash Dryer (SFD) area including the staircase and all the separating walls in this area collapsed due to the explosion overpressure wave. The column on the southwest side of Pulverizers 2 & 4 got drifted towards southwest side and it literally touched another column standing beside it (**Figures 4.22 (a)-(d)**). Because of drifting of this column, the beam on this column got dislocated and the roof on this beam became cantilever. On the southeast side of this beam portion, Filter Presses 1 & 2 were located, and also hanging on this roof from below was the Screw conveyer of the SFD. Due to heavy load in this area of Filter Presses 1 & 2, the slab collapsed. Mr Amarjit Sada who was working near Filter Presses 1 & 2 slid down along with these Filter Presses to the Ground floor. He received minor thermal injuries. There was no fire in this area (**Figure 3.3)**.

Figure 3.3: Unburnt MCC in SFD

The pressure wave after shattering the wall on the west side of the Glass Lined Reactors (GLRs) went ahead and shattered the shutters of the Finished Goods warehouse.

The approximate marking of areas on the collapsed structure for Ground floor and First floor are given in **Figures 3.4 (a) to 3.4 (h)**.

Figure 3.4 (a): Marking the Areas of the Ground Floor

Figure 3.4 (b): Marking the Areas of the First Floor

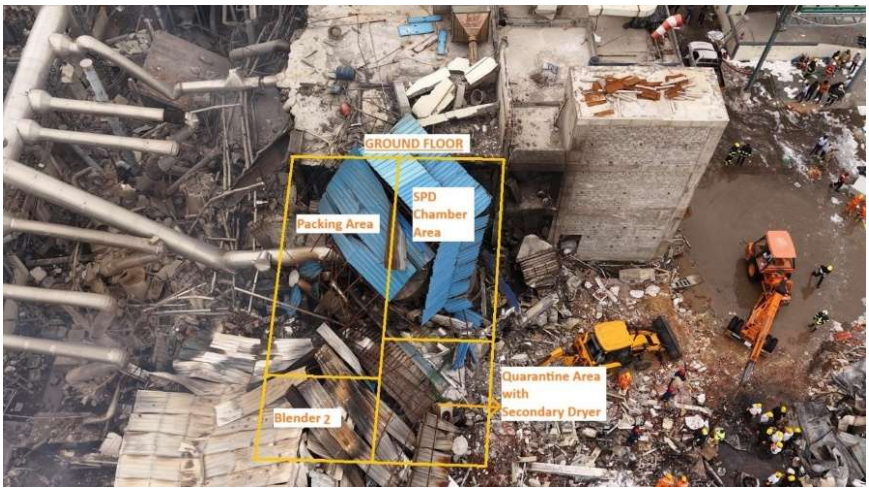


Figure 3.4 (c): Marking the Packing area, SPD chamber area, Blender 2 and Quarantine area of Ground Floor

Figure 3.4 (d): Marking part of QC area, QA area and SPD chamber of First Floor

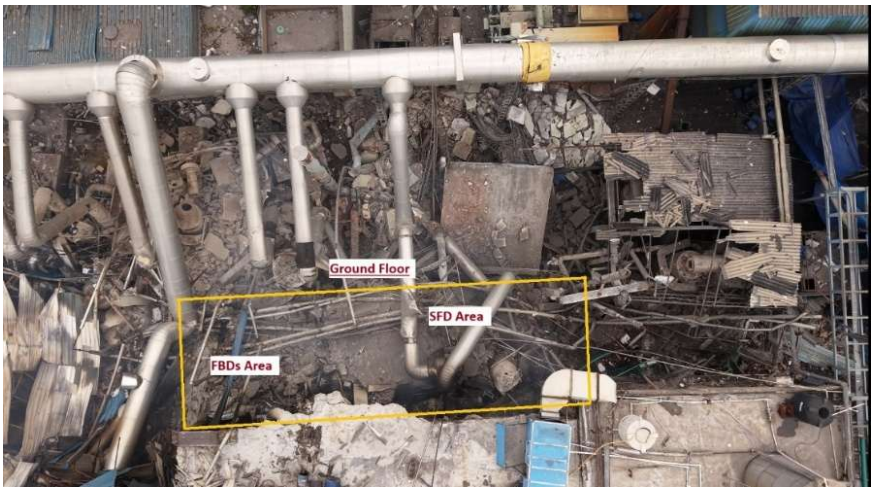


Figure 3.4 (e): Marking part of FBDs area and SFD area of Ground Floor

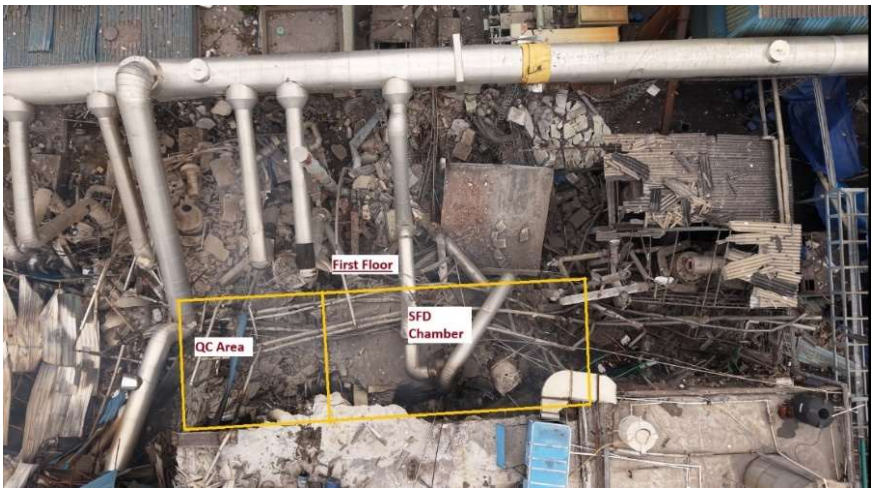


Figure 3.4 (f): Marking part of QC area and SFD area of First Floor

Figure 3.4 (g): Marking the FG Godown and Pulverizers 1 & 3 of Ground Floor

Figure 3.4 (h): Marking the QA area of First Floor

The fire ball projectile generated from the explosion initiated fire in the Engineering stores/HR building. Another fire ball projectile initiated fire in the north side open area where equipment for the new project were placed under a tarpaulin, and also Sodium Chlorite drums were seem to be placed (**Figure 1.2, 3.5 (a)-(d)**) in this area.

After the first huge explosion, another small intensity explosion must have taken place in the open area where equipment for the new project were placed under a tarpaulin. A huge intense fire initiated there, engulfing a wide area covering the undamaged parked car of Mr Elangovan,

Vice President, Manufacturing. Mr Elangovan, who was thrown away towards his car and had fell unconscious because of the first major explosion wave, got severely burnt and charred because of this fire. Four more workers including Ms Rukhsana of QC got their bodies burnt and charred in this area.

Figure 1.2

(a)

(b)

(c)

(d)

Figures 1.2, 3.5 (a)-(d): Fire and Smoke in the opposite open area

At the time of the incident, a total of 143 workers and 3 Security personnel were present at the site. Tragically, 54 workers lost their lives including 8 bodies which got vanished in this fire and explosion. Out of 36 workers who were admitted into various hospitals, 8 workers had died (on the way to the hospital/during treatment), 25 workers were discharged and 3 workers were still undergoing treatment at the time of writing this report.

3.2 Accident Site and Hospital Visit by the Committee

The Committee visited the accident site first time on 3rd July 2025. The Committee met personnel from various departments of Sigachi Industry and tried to understand the manufacturing process of Micro Crystalline Cellulose (MCC). On 4th July, the Committee also went to Dhruva hospital and interacted with injured workers who were in a position to speak.

Figure 3.6: The Committee visiting the Dhruva Hospital, Patancheru

The Committee studied the accident site as well as the open industrial plot where all the debris of the accident were placed. From the equipment/machinery in the debris, the Committee tried to identify various unit operations equipment with the help of production/maintenance team of Sigachi. The Committee interacted with the following personnel of Sigachi.

1. Mr. Amit Raj Sinha, MD, CEO and Promoter
2. Mr. Chidambaramnathan, Executive Vice Chairman
3. Mr. Avaninder Kumar Singh, Manufacturing Head
4. Ms. Sowmya Dubey, Manager, CEO Office
5. Mr. Rafiq Patel, AGM QA & Head of Operations
6. Mr. K P Patel, Production In-charge (Present during the incident)
7. Mr. Sanjay Joshi, Head of Projects
8. Mr Umapathi Naidu, DGM, Liaison
9. Mr. Seetayya, Manager HR
10. Mr. P. Rajshekhar Reddy, Manager QC

In order to understand the process and the equipment functions in the manufacturing process of MCC in detail, and also to understand the hazards involved and the safety measures in place in these plants, the Committee visited Sigachi's MCC manufacturing plants at Jhagadiya and Dahej in Gujarat on 14-16th July, 2025.

The Committee visited the Sealing machine manufacturer, Ahmedabad, on 24th July and Jhagadiya plant again on 25-26th July 2025, to understand the working principle and the hazards associated with the operation of the Sealing machine used in the Packing area. The Committee took practical demonstrations of the working of the Sealing machine at Jhagadiya plant (Video 4: Sealing machine operation).

During the course of the investigation, the Committee interacted with the District Administration, Fire brigade, SDRF, NDRF, Police, Government Medical Doctors and other Government officials.

3.3 Strategy for Investigation

The accident was very severe, the earth literally was shaken, everything was reduced to rubble and grounded. Many workers died in this accident and many were trapped under the debris. During the search and rescue operations, the District administration and the Police have removed all the equipment/machinery and the remnant debris with the help of JCBs, cranes and other machinery, and shifted all these to a nearby designated open industrial plot. Police protection was provided to this area and the Sigachi plant round the clock.

Even before the time of the first visit of the Committee to the site on 3rd July, the accident site was already reduced to an open plot with the skeleton of the damaged building standing there on.

As the members of the Committee were from different cities, viz. Hyderabad, Chennai, Pune and Nagpur, the Committee used to meet daily in online mode. On 9th July, during the internal online meeting amongst the Committee members, it was unanimously decided that the investigation for finding the cause of Fire & Explosion, Fire and Explosion Forensics shall be used.

3.4 Committee Visit to Sigachi plants, Gujarat

The Committee visited M/s Sigachi Industries Ltd. factories at Jhagadiya and Dahej in Gujarat, on 14-16th July and also on 24-26th July 2025. The Committee was briefed about the process and plant operations that are being carried out by the plant personnel.

The Committee had a detailed round of the plants for having the first hand information about the plant operations, equipment/machinery, and the hazards involved and safety measures in place.

Jhagadiya Factory Visit:

In this plant, the total production capacity is around 20 tons/day. There are 4 GLRs of 10 kL each and the batch size is 800 kg of cellulose sheets (90% cellulose and 600-1200 DOP), and around 16-18 batches of production are taken per day.

After Hydrolysis, the filtering and drying is done in two methods, 1) Filtering with Filter presses and Drying with FBDs (Old Block), and 2) Filtering with Agitated Nutsch filter (ANF) (12 kL) and Rotating Vacuum Drum Filter (RVDF), and Drying with Cage mill SFD (New Block). Spray Dryer is not used at this facility.

In the first method (Old Block), there are 3 Filter Presses and 4 FBDs (200 kg-1 No.,150 kg-2 Nos., and 100 kg-1 No.), and around 9 tons/day is produced. From FBDs, the material is sent to Pulverizers for size reduction and sifters for sieving. There are 2 Pulverizers with a capacity of 200 kg/h and 150 kg/h. The Pulverizers are connected to Dust collectors. From here, the material will be sent to a silo which is having a rotary valve with VFD, and then to blending and sifting. There are 2 Blenders with a capacity to process 1ton material each and 2 Sifters attached to each Blender.

The QC & QA will check the product quality and then the material is packed in 20 and 25 kg 3 layer LDPE bags. The inner bag is sealed with induction heating with Metal strip Sealing machine at around 120^{o}C and the outer 2 layers are stitched. These bags will be sent to Quarantine room and then sent through Metal detector to the Finished Goods godown.

Around 15 tons packaged material was there in the Warehouse next to Packing area. AHUs are there in FBDs, Pulverizers and Blenders areas. This old block is only having Ground floor.

Figure 3.7: FBDs in Jhagadiya Plant

Figure 3.8: Pulverizers in Jhagadiya Plant

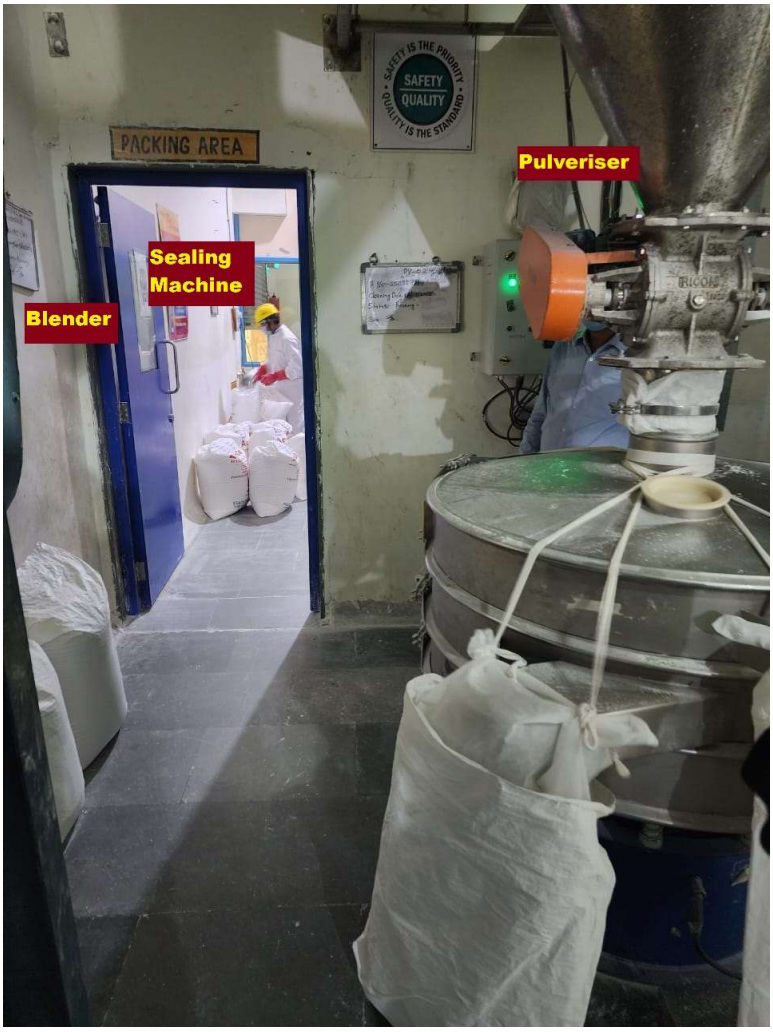


Figure 3.9: Sifter in Jhagadiya Plant

(a)

(b)

Figure 3.10 (a) & (b): Sealing & Weighing machines and FG area in Jhagadiya Plant

Figure 3.11: Packing area in Jhagadiya Plant

Huge dust of MCC was there on floors, on the equipment, and in the atmosphere of FBDs, Pulverizers, Blenders and Sealing & Packing areas.

A door is provided separating the Sealing/Packing area and the Pulverizers/Blender area. This must be specifically for avoiding the entry of MCC dust produced in FBDs area, Pulverizers area and Blender area into the Sealing/Packing area. But it was observed that for the ease of transporting filled bags of MCC powder from the Sifters of Blender to the Weighing/Sealing machine, this door was continuously left open. Because of this, a huge dust cloud and dust was present inside of the Weighing/Sealing machine area. Similarly, it was also observed that despite of the provision of separation door for isolating FBDs area from the Pulverizers/Blenders area, for the same reason of ease of operation, this door was also always kept open. The top management is fully aware of all these safety lapses which could lead to a disastrous situation like that happened in their Pashamylaram Plant on 30th June (**Figure 3.12**).

In the second method (New Block), Agitated Nutsch filter (ANF) (12 kL) and Rotating Vacuum Drum Filter (RVDF) are used for filtration. The wet cake from the filtration then is cut into small lumps using Screw feeder, it is sent to cage mill SFD drying with hot air at 200^{o}C. The hot air is sent through bag filter. The dried material is sent through Sifter to Silo and Blender with Sifter. The ANF and RVDF are used to reduce manual intervention in the process. This new block

is a three storied building. This New Block is spacious compared to Old Block, but the dust atmosphere was present here also.

Dahej Factory Visit:

In this plant, the total production capacity is around 20 tons/day. There are 4 GLRs of 8 kL each and the batch size is 800 kg of cellulose sheets (90% cellulose and 600-1200 DOP), and around 28-30 batches of production are taken per day. 1 kg of Sodium Chlorite is added to the reaction mixture per batch, i.e. about 30 kg of Sodium Chlorite is consumed per day in this plant.

After Hydrolysis, the filtering is done in two methods, 1) Filtering with Filter presses (Old Block), and 2) Filtering with Agitated Nutsch filter (ANF) (8 kL) and Rotating Vacuum Drum Filter (RVDF) (New Block). In both the methods, the drying is done by Spray Dryers.

In the first method (Old Block), filtering and cake washing are done by 2 Filter Presses (2 Nos.). Around 13 tons per day is produced through this method. The dimensions of the spray dryer are: Chamber diameter-7.7 m; Chamber height-10 m; Cone height-7 m. The MCC product output from spray dryer is 500 kg/h. From Silo, after quality check, the material will go for packing where sealing and stitching is done in 3 layered 25 kg bags. For export, outer bag used is paper bag for 20 kg. In the packing area, the sealing with induction heating in a Metal strip Sealing machine and stitching are done.

In the second method (New Block), Agitated Nutsch filter (ANF) (9 kL) (3 Nos.) and Rotating vacuum drum filter (RVDF) are used. This New Block is spacious compared to Old Block, but the dust atmosphere was still present.

Figure 3.12: SPD top in Dahej Plant

Figure 3.13: Sifters in Dahej Plant

Figure 3.14: Sifter for SPD in Dahej Plant

Figure 3.15: Packing area in Dahej Plant

Figure 3.16: Sealing machine in Dahej Plant

Figure 3.17: Sealing and Stitching in Packing area in Dahej Plant

3.5 Second Visit of the Committee to Jhagadiya plant

After the detailed Fire and Explosion forensics study, the Committee had sufficient evidences that the incident had occurred because of wrong operation/malfunctioning of the Sealing machine placed adjacent to the Weighing machine in the Packing room.

In order to cross verify the possibility of Sealing machine really contributing to this incident, the Committee decided to have practical demonstrations on the existing similar Sealing machine. So the Committee visited the manufacturer of the Sealing machine (which got burnt in the Packing room at Pashamylaram plant), and because the identical Sealing machine was in operation at Jhagadiya plant, the Committee visited this plant on 25th July to have a demonstration.

Working Principle of the Sealing machine:

The Sealing machine works on the principle of heating. The heating element of the Sealing machine consists of Nicron electrode. The conductor (Nicron electrode) is placed in between two heating coils in the Sealing machine. The heating coils provided on both the ends of Nicron electrode produces heat. The conductor is covered with insulating Teflon tape which is a fixed arm, and the moving arm is also covered with insulating Teflon tape.

LDPE bag is pressed in between this conductor and the moving arm. LDPE can melt and burn with flames easily, hence, teflon insulating tape is provided on the conductor as well as the moving arm. Depending upon the melting point of LDPE, the duration of heating is decided. A pedal is provided to activate the pneumatic system which in turn moves the moving arm of the Sealing machine and touches the fixed conductor arm. LDPE bag is held on the fixed conductor arm, and upon pressing the pedal, the moving arm presses the bag against the conductor arm, the conductor arm makes LDPE material hot, soft and sticky, and takes a time of 3-4 seconds (depending upon the thickness of LDPE). The moment pedal is released by the operator, cooling starts and LDPE bag gets sealed.

This entire operation is a very sensitive one. Even if the operator delays in releasing his foot from the pedal even by a second or two, the LDPE can melt and burn if the timer switch is faulty (this switch is locally made and as per the manufacturer, as it is made up delicate electronic components, there are chances that it can malfunction), and also that the electrical coils on both sides of the Nicron electrode emit flames. If LDPE comes in contact with these flames, it will catch fire. Selector switch in the Sealing machine provides choices for setting the duration of seconds of current flowing in the heating coils. There is a choice for 1 to 10 seconds. The duration for which the heating coils have to be given electrical current depends upon the nature of the LDPE sheet. Usually, 3-4 seconds duration is chosen, but it depends upon the nature of the LDPE sheet to be

sealed. If a thick LDPE or three layered LDPE sheets are to be sealed, then the duration required is more.

In a shift various kinds of MCC are manufactured depending upon the orders from the Purchase department and QC. Depending upon the order, triple layer, double layer or single layer LDPE sheets are used, so the selection of the number of seconds on selector switch has to be changed multiple times in a day. (**Figures 3.19 (a), (b) & (c); Video 4: Sealing machine operation**).

If the Sealing machine is operated by a helper who is not at all qualified, and who does not know the fire and explosion impact because of wrong operation, would operate it carelessly and may he select a larger duration for thin layer LDPEs. If the helper is illiterate, unqualified and is not aware of the life threatening consequences, he will not be able to identify whether the earlier operator had set the switch for 2/3 layers. He may continue to operate the Sealing machine with the same time duration setting for single layer LDPE and LDPE can catch fire.

Demonstration:

Sigachi gave demonstration of the operation of the Sealing machine on 25th July 2025 in their Jhagadiya Plant. The machine on which demonstration was given was of the same model, make and specifications as was being used in Sigachi's Pashamylaram Plant before accident. The machine at Pashamylaram Plant was very old by about 6-7 years as compared to the machine on which the demonstration was given.

Usually, a single layer of insulating Teflon tape is provided on the Nicron electrode for optimum heating. But during demonstration at Jhagadiya plant by the Sigachi on 25th July, the Committee observed that they put 2 such Teflon tapes one above the other on both the arms of the Sealing machine. It was understood by the Committee that they took this extra precautionary measure only to avoid any overheating during demonstration. But despite of all such precautionary measures, even the double layer insulating Teflon tape got burnt during demonstration. In the video taken of the demonstration, the formation of flames is clearly seen (**Figure 3.20; Figure 3.21; Video 4: Sealing machine operation**).

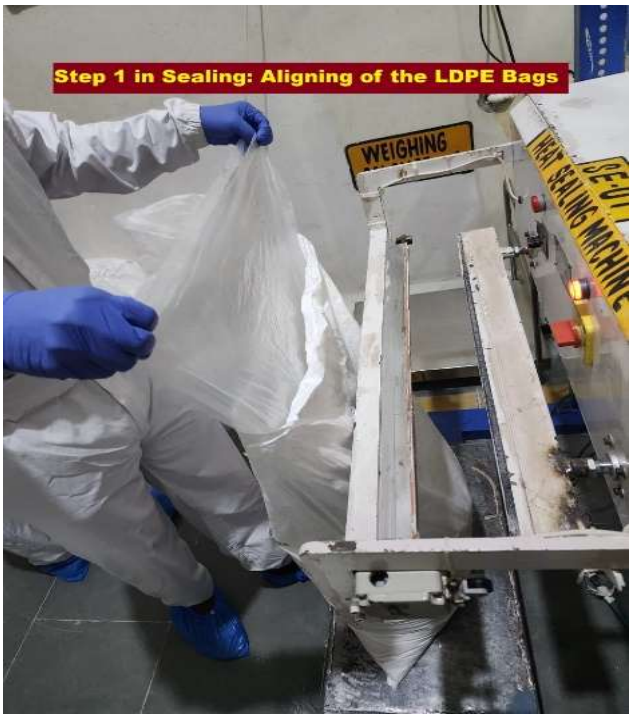
Based on his experience, a Senior Manager from the Maintenance department of the Sigachi Industries, Jhagadiya plant, in his written statement to the Committee detailed various

reasons for fumes and flames (burning) generation in the Sealing machine (**Annexure 13: Statement of the Manager**).

Hence, given the kind of risk, the operation of the Sealing machine is a highly sensitive and hazardous job and must be performed by a trained operator only.

Shift Packing Operator at Sigachi's Pashamylaram Plant Mr. Dinesh Patel stated in his statement **(Annexure 19)** that he used to receive helpers on daily basis from the Production department at the start of the shift. He used to make these helpers to operate Weighing, Sealing and Stitching machines. He also used to work on any of these machines as per the requirement.

Figure 3.18: Sealing machine


Step 1 in Sealing: Aligning of the LDPE Bags
WEIGHING
HEAT SEALING MACHINE

(a)


Step 2
Positioning the double Folded (now eight layers LDPE Bag in between two arms of the Sealing Machine and pressing the pedal for generating haet.
WEIGHING
HEAT SEALING MACHINE
BE-01
Step 3
Pedal to be pressed by the Sealing machine operator

(b)

(c)

Figures 3.19 (a), (b) & (c): Sealing machine Operation

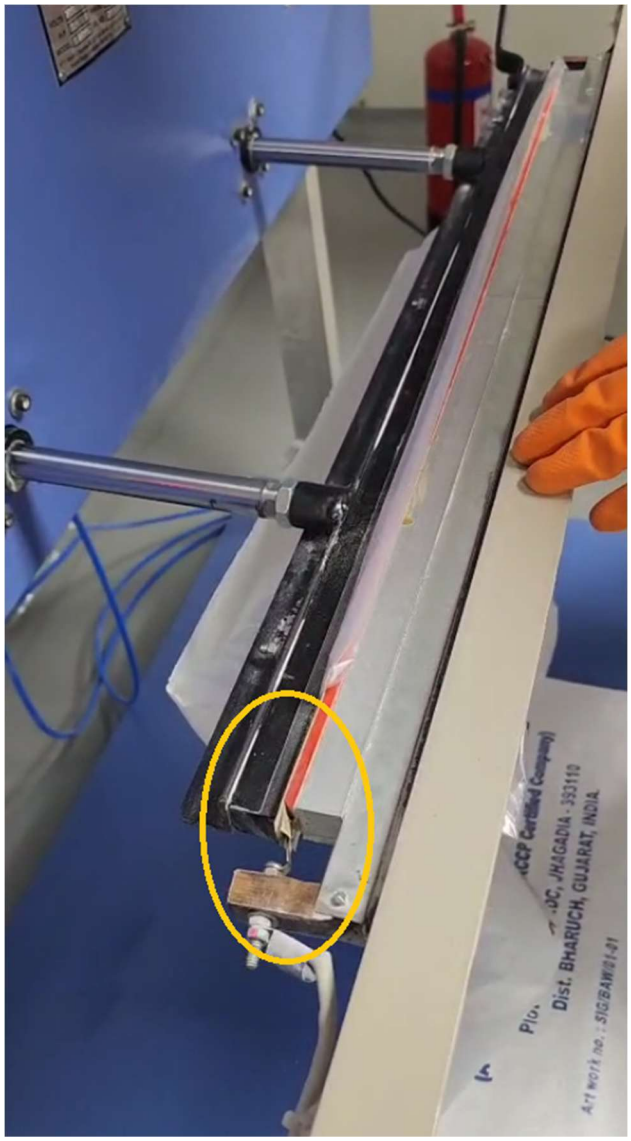


Figure 3.20: Sealing machine before initiation of flame and smoke in Jhagadiya Plant

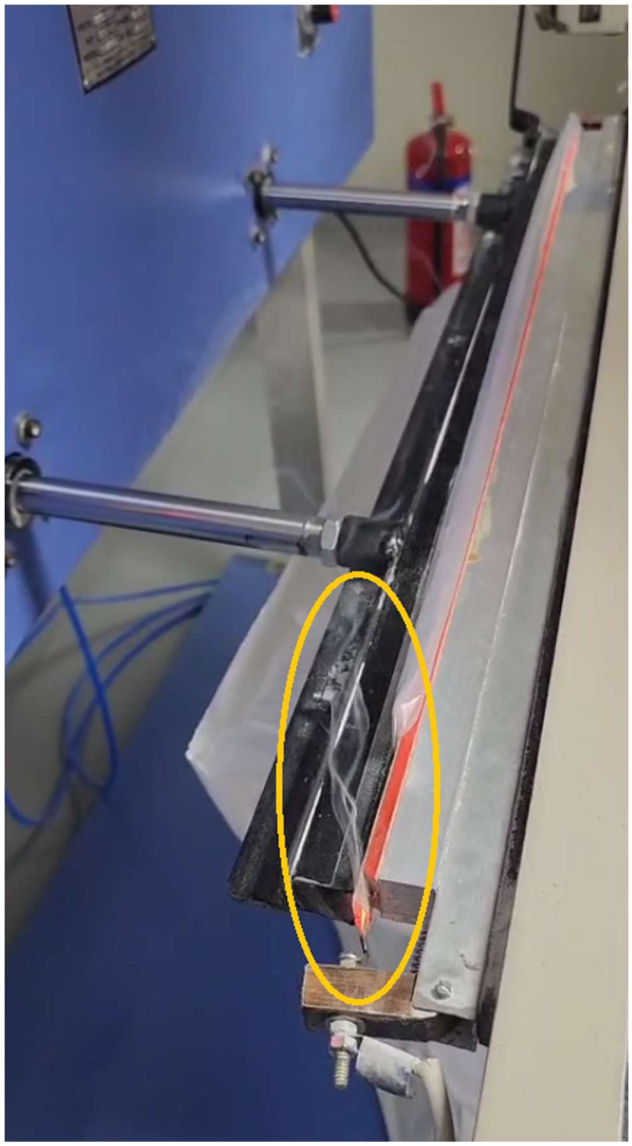


Figure 3.21: Sealing machine after flame and smoke in Jhagadiya Plant

CHAPTER IV

Analysis of the Accident

During the rescue and relief of the trapped workers, the District Administration removed all the damaged and affected equipment/machinery, and debris, and shifted them all to a nearby designated vacant industrial plot. At the accident site, no process equipment was available at its place. So, the committee applied the principles of fire and explosion forensics for the purpose of investigation.

4.1 Epicenter of explosion was identified to be the Sealing machine in the Packing area

After analyzing the photos, videos and the CCTV footages received from various sources, viz. drone camera, fire brigade, NDRF, SDRF and M/s Virupaksha Organics Ltd., it was identified that the worst explosion scenario in terms of shattering of the roof and the walls must have happened in the Packing area (**Figures 4.1 (a)-(i)**; **Videos 1, 2 & 3: CCTV footages from Virupaksha**).

(a)


Spray Dryer
Explosion had already initiated,
Property seen exploded, but the Spray
Dryer still at its original position.

(b)

(c)


Spray Dryer still seen in its original position despite of huge destruction in its surroundings.
Explosion created huge over pressure wave and a huge ball of fire of more than 25 M height.

(d)


12:00:00 AM
12:00:00 AM

(e)

(f)

(g)

(h)

(i)

Figures 4.1 (a)-(i): CCTV footage Photos of the Explosion from Virupaksha

The slab of the Ground floor above the Packing area near and around the Sealing machine got completely fragmented. The GI sheets roof on the first floor above this portion also blown off in this explosion.

Two columns, one at Blender 1 and one at Pulverizers 2 & 4 area, got drifted towards northwest and southwest directions respectively. The wall between the Packing area and that the Spray dryer (SPD) got shattered towards northwest side, away from the Packing area.

Due to the explosion overpressure wave, the wall between the Packing area and bottom of the SPD got shattered towards northwest direction, and the SPD also got flung into air into the northwest direction and collided against the wall of QC on the First floor. The wall on the northwest side of the SPD (between SPD and Dispatch Goods godown) also got collapsed outward towards northwest side due to the same overpressure wave.

The walls behind FBDs got shattered and blown away outward towards southeast direction. The structure of Pulverisers 1 & 3 got completely shattered and the same pressure wave even shattered the wall of Utility area behind Pulverisers 1 & 3. The walls and roof of Blender 2 also got shattered. The walls of the Quarantine and Day FG area also got shattered outward.

All the goods and the equipment lying in the dispatch area and around, got thrown away towards the northwest direction. The GI shed of the Dispatch Goods area got hugely pushed away towards north side towards Engineering stores/HR building (**Figure 4.2**).

Figure 4.2: GI sheets thrown toward Engineering stores/HR building

The pressure wave also shattered portions of Engineering stores/HR building and the compound wall adjacent to this building got thrown away outward towards northeast direction.

The pressure wave after destroying the wall of Blender 1 entered the Slurry tank area and damaged the walls (**Figure 4.3**). Then the same pressure wave damaged the walls in the Changing room also.

Figure 4.3

About 47 deaths that occurred because of burning were observed in an area surrounding the Sealing machine (Packing area, SPD area, FBDs area, Blender 2, Day FG area, Metal detector area, and Pulverizers 1 & 3 area). Out of these, 26 persons died in an area of 750 sq. ft. only which is the area surrounding immediately the Sealing machine. Body parts of almost all of the bodies in this area were missing as evidenced in the postmortem report. Many workers died in a small space exhibiting that there was a very little space for the movement of humans inside of the Packing/ Blender 1 & 2 area (**Figure 4.4**).

Figure 4.4: Mapping of the dead persons

Given the huge quantity of the combustible material (in the small packing room), i.e. more than 17000 Kgs of MCC (700 bags of 25 Kg each), and its easy burning characteristics, a temperature of about 900-1000^{o}C and a heat flux of about 25-30 kW/m^2 must have formed in that area. This was the prime reason for severe burning and cooking of the bodies of the workers and even for evaporation of bodies of 8 workers (**Figure 4.5**). Out of these 8 workers, 2 were from Packing area, 3 were from QA area sitting just above the Packing-FBD 3 areas, 1 was from Blender 1 and 1was from Pulverizer 4 area. Out of these 8 workers, 7 workers happened to be present at and around Sealing machine area prior to the explosion. One worker from Pulverizer 4 must have come to this area just prior to the explosion.

Figure 4.5

The bones and teeth are the only parts in the body of a human being which requires huge heat for disintegration and disappearance. Hair, skin, soft tissues, enamel of the teeth etc. in a human body get evaporated easily at a temperature of 400-600^{o}C, but for disintegration of bones/ teeth, a huge heat in the range of 900-1000^{o}C for about one hour is required. The fact in this explosion that many of the bones of the amputated parts of the bodies of many victims were not found despite huge efforts by the search and rescue team exhibits that indeed a huge temperature above 1000^{o}C was generated for a very long time, as most of these bodies in the Packing/FBDs/Blender 2 area were recovered almost after 16 hr of the accident, and a huge heat was still persisting at that time also (**Figure 4.6**).

Figure 4.6: Fire burning under the fallen QA area GI sheets roof

In case of 2 persons, only one or two severely charred bones were found by the search and rescue team. The heat was so intense that it even disintegrated teeth of a person. There was severe burning/charring of humans to the extent that the identification could be established only through the DNA tests for many of them (**Annexure 14: Analysis of the death of workers**).

A huge quantity of MCC powder must be lying in the form of dust cloud in the above mentioned areas as observed by the Committee during their visit of Sigachi Industries MCC Plants in Jhagadiya and Dahej, Gujarat.

In the CCTV footage provided by Virupaksha, it is clearly seen that the GI sheet shed of the QA area (First floor) immediately above the Packing area got flung into air. Some structural parts are also flung into air due to this explosion, and a huge ball of fire got erupted from the Packing area. The flame height of this fire ball is seem to be above 25 m. In the same footage, it

is observed that the fire was a very wide one exhibiting that the explosion and the fire had covered a huge area (**Videos 1, 2, & 3: CCTV footages from Virupaksha**).

From the fact that everything above the Sealing machine area in the Packing room got fragmented, and it remained open to sky whereas the rest of the areas were showing presence of the debris and as described in the above paras, it can be concluded that indeed the epicenter of this disastrous explosion was around the Sealing machine in the Packing area (**Figure 4.7**).

Figure 4.7

4.2 Packing area

Most of the workers working in the Packing area were very young without experience, and had joined Sigachi Industries in the month of June 2025 only. Few of these workers had joined Sigachi Industries on 28th of June. Many of the workers had joined the Sigachi just an hour before the accident on 30th June. These workers were illiterate and none of these workers were provided any kind of training. There was no induction programme, and even the basic training w.r.t evacuation in case of fire and emergency was not provided to any these deceased workers. They were directly put on the shop floor for working on the machines.

The fire in this Packing area produced tremendous heat and because of presence of huge quantity of easily combustible MCC, a humongous quantity of heat flux was generated in the Packing area. Because of the explosion associated with this humongous heat flux, a huge quantity

of heat was also spread to nearby areas including FBDs, Sifter of SPD, Quarantine area, Metal detector area, Day FG area, Pulverizers 1 & 3 area.

Twelve workers working in the Packing area died because of severe charring in this explosion. Bodies of most of these persons were shattered into pieces. Because of the severe explosion, the roof of the Packing area got literally shattered and 3 persons sitting in the QA area above on the First floor fell down below.

4.3 Weighing machine in the Packing area

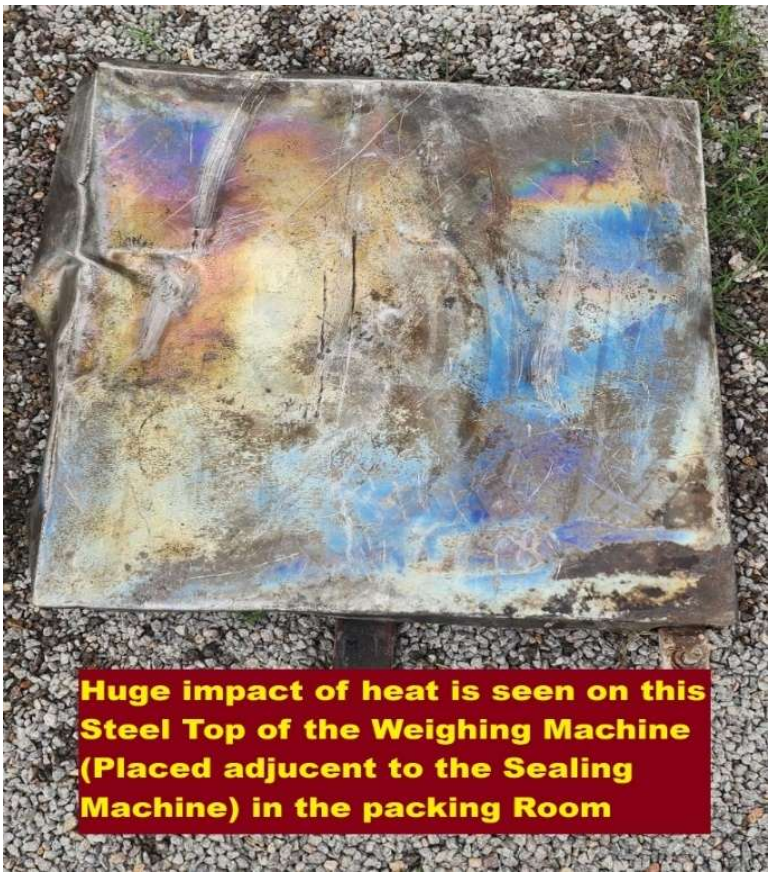
In the Packing area, one Weighing machine was placed adjacent to the Sealing machine. These two machines were placed on the floor. After the explosion on 30th June, District Administration during the search and rescue operation, shifted all the equipment/machinery and other debris to a nearby designated open industrial plot.

The Committee while searching for the Sealing machine and other evidences in the debris found one top SS part of the Weighing balance. The Committee observed huge signatures of fire on the steel top of the Weighing machine. Actually, the Weighing machine is placed at the floor level and fire has always a tendency to move up, hence there were no chances that the steel top of the Weighing machine would exhibit such severe signatures of heat, unless it was exposed to a huge heat flux.

Mr Kamla Prasad Patel, Production In-charge, of the factory confirmed that this Weighing machine top was of the Weighing machine which was being used in the Packing room only.

This also supports the fire and explosion forensics findings of the Committee that a huge temperature and heat flux was indeed generated in the Packing area near the Sealing machine.

(a)



(b)

Figures 4.8 (a) & (b): Top SS part of the Weighing balance

4.4 Sealing machine in the Packing area

Sealing machine was placed just adjacent to the Weighing machine in the Packing area. After the accident, when the videos taken prior to the removal of the debris by Drone camera were analyzed, an open space was seen near and around the Sealing machine despite of huge debris all over the area. In the area near and around the Sealing machine, even the floor of the Ground floor was visible at some places. Flames of fire were seen erupting from those places. The GI sheets roof of the First floor in this area is missing, exhibiting that these GI sheets were blown away due to explosion wave, which is also confirmed in the CCTV footage provided by Virupaksha (**Video 1: CCTV footage from Virupaksha**).

It was observed and also confirmed by the rescuers that the persons who were burnt were not buried under heavy debris, but most of the debris could be removed by hands although help from JCBs was taken for removal of these people from the debris (debris were shattered into small pieces because of huge explosion initiated in this area).

A huge quantity of ready to be weighed, sealed and packed MCC material (above 17 tons) was lying in Packing area only. Similarly, a huge quantity of material was also lying in the FBDs, Quarantine area, Metal detector area, Sifter of SPD, Day FG area, Dispatch Goods godown and Blender 2. It is understood that about 120 tons of material was lying in the production area on the Ground floor (Annexure 11: Inventory)

All the material in Packing area, FBDs, Quarantine area, Metal detector area, sifter of SPD, Blender 1, and Blender 2 got completely decomposed and burnt instantly. Most of the material in Day FG area also got instantly burnt. This produced a huge quantity of heat, and many workers (about 32) working in these areas died because of receipt of heat of fire.

As per the statement of Dinesh Patel (Annexure 19), the Sealing machine was being operated by any helper assigned to the packing supervisor by the Production department. These helpers were not at all trained to operate the Sealing machine. These helpers may not even be qualified to learn and understand the instructions for safe operation of the Sealing machine, neither that they are trained by Sigachi for operating the Sealing machine. Operation of Sealing machine was never ever taken by the management as a hazardous activity. These Sealing machines were

also available in the market and even the merchants in many sectors are using the similar Sealing machines bought from the same vendor.

4.5 Collapsing of the roof of the FBDs (Floor of QA & part of QC) and the fragmentation of the wall behind FBDs

There were 5 FBDs placed in one line adjacent to each other. Behind these FBDs, there was a long wall with a height of about 16 ft. There were columns also in this wall. The slab of QC was resting on these columns of the wall. FBDs 3 & 2 and part of FBD 1 laid exactly behind the Packing area.

There was a long passage thus formed because of 16 ft height in the FBDs area behind the Packing area and Blenders 1 & 2. Due to initiation of huge explosion wave in the Packing area, the wall behind FBDs got shattered into pieces and the columns were thrown away and structure above got collapsed.

4.6 Collapse of the structure of Pulverisers 1 & 3

It is evident from various videos and photos that the walls and roof of Pulverizers 1 & 3 got fragmented and the debris thrown away. Most of these heavy debris flung in air, and reached and even broken the wall of the Utilities area (**Figure 4.9**).

Figure 4.9: Broken wall of the Utilities area

The intensity of pressure wave was so huge that the heavy pieces of debris got thrown away by a distance of about 20-25 ft. There was also a huge receipt of heat in the Utilities area.

4.7 No initiation of fire or explosion in the Spray Dryer (SPD)

Normal working pressure of SPD was about 30 mm WC and normal inlet temperature of SPD was about 200°C. There was atomizer inside of the SPD at the top which was the only rotating/moving part in the SPD. Normal speed of the atomizer was about 1200 rpm.

In the debris, the entire assembly of the atomizer including its revolving chamber and the housing were found completely intact. The driving motor of the Atomizer is seen fallen down on the ground near SPD. There were no signatures of generation of any overpressure inside of the SPD. The wall portions of the SPD didn't exhibit any explosion happening inside of the SPD.

In normal working position, the SPD was in a hanging position with its bottom end lying about 5-6 ft above the floor. The wall on the First floor beside SPD and above Blender 1 was seen cracked heavily. This wall did not shatter and retained its integrity. The rear bottom side portion of the SPD exhibited huge damage because of external physical impact.

After studying in detail, it was confirmed that this external physical impact on the rear bottom side portion of the SPD was due to SPD flinging in air and colliding against the neighbouring wall. This huge momentum of the SPD was due to the explosion overpressure wave generated in the Packing area (**Figures 4.10 (a) & (b)**).

Because of this huge impact of the pressure wave at the bottom and flinging of SPD towards West direction, tilted its top towards QA area on the East direction. Because of this, a huge dynamic force acted on the HAG line of the SPD and the HAG line got bent from the center towards the ground.

In the CCTV footage provided by Virupaksha (**Videos 1: CCTV footage from Virupaksha**), it is clearly seen that the SPD structure was completely intact for 2-3 seconds even after the explosion. It sank in after 2-3 seconds after the explosion. 2-3 seconds is the huge time given the exponential speed with which the explosion wave travels (about 340 m/s). Even the GI sheets covering the top portion of the SPD were intact. It was seen that these GI sheets covering the top of the SPD were completely intact on the fallen/tilted SPD till they were removed by the search and rescue team (**Figures 4.10 (a), (b) & (c)**).

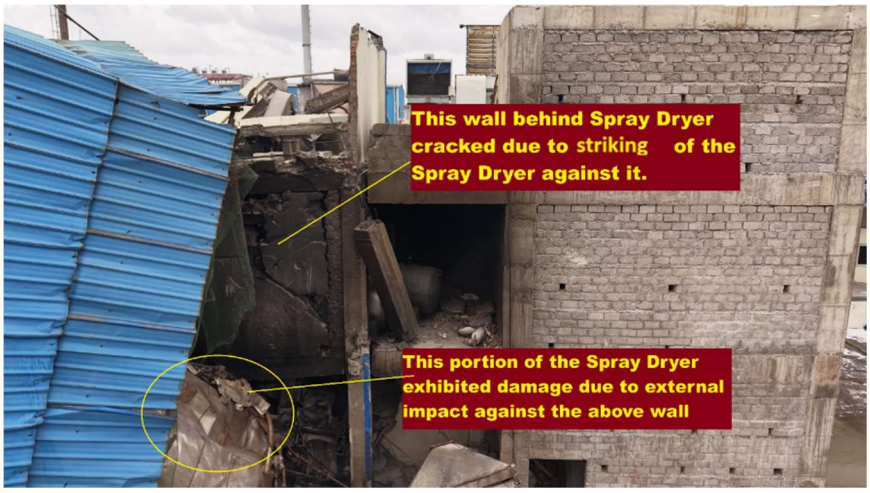
It was also observed that there was no temperature rise at the upper level of the SPD. The GI sheets covering the SPD from all sides at the top and even the Green coloured plastic net at the top did not exhibit receipt of any heat (**Figure 4.10 (c)**).

SPD was also studied by the Committee by entering inside of the SPD. There were no signatures which could exhibit that there was any explosion happened inside of the SPD.

Even when SPD was lying at its dislocated position in the SPD chamber area, there were no signatures from outside which could exhibit that there was any overpressure generated inside of the SPD and it exploded.


Spray Dryer was completely intact after the explosion. It fell down because of the overpressure shock wave received by it externally. It did not exhibit any damage at all which could be contributed to any internal explosion.

(a)


This wall behind Spray Dryer cracked due to striking of the Spray Dryer against it.
This portion of the Spray Dryer exhibited damage due to external impact against the above wall

(b)


Green coloured
plastic net

(c)


The top of the Spray Dryer and the GI Sheets shed covering
the top of the SPD did not exhibit receipt of or Generation
of any explosive wave or higher thermal impact.

(d)


Wall on the
northwest of the
SPD got shattered
towards outwards
The Columns of
the SPD also
drifted towards
northwest
outwards

(e)


This Spray Dryer was studied from the perspective of any over pressure having been generated within, but we did not find any signatures which would suggest/ exhibit this.

(f)


Bottom of the Spray Dryer

(g)

(h)

(i)

Figures 4.10 (a)-(i): Spray Dryer (SPD)

The new structure which was under construction adjacent to SPD also didn't exhibit receipt of any heat or overpressure.

Figure 4.11: New structure beside SPD area

4.8 Blender 1

The pressure wave generated in the Packing area has blown away the wall separating it from Blender 1. Blender 1 was seen drifted from its original position, but its roof was intact (**Figure 4.12**).

Figure 4.12: Fire burning in Blender 1

4.9 Collapse of entire roof of Day FG area, Blender 2 and Quarantine area

The pressure wave generated in the Packing area impacted the Day FG godown, Blender 2 and Quarantine area. All the columns in this area got uprooted and drifted.

The entire slab above the entire Day FG area, Quarantine and Metal detector area simply collapsed in single peace because of uprooting and throwing away of the columns supporting it, rested on the debris below. The pressure wave generated in the Packing area shattered the walls and structure in the Blender 2 area. This is evident from the fact that the portion of QA fell down on this area. The First floor area including slotted angle racks, stability chamber, and chemical store of the QA department also fell down in integrity as a free fall, i.e. the slab of the Day FG area.

MCC kept in the Quarantine area and Metal detector area got burnt completely and huge heat was generated in this area. Ms. Divya and Ms. Murtaza (from QC) were together in the lobby of the QA area (First floor). In this area, on the First floor the roof was of GI sheets. Due to this GI sheets roof and the MCC powder in this FG area where Divya and Murtaza fell didn't burn, these two girls didn't receive any major injuries or burns.

4.10 Collapse of walls

This pressure wave travelled all across the FBDs area. The separation wall in between the Coal yard and the operational area (**Figure 4.13**), wall in the Ammonium hydroxide wash collecting tanks, walls in the three sides of the Filter press 3, and wall behind Blender 1 and Pulverizers 2 & 4 also got shattered.

Figure 4.13

The pressure wave damaged the columns in the FBDs wall, due to this the slab which was the Floor of the QC area fell down immediately. This portion of the structure was not fragmented, but got broken into pieces. Due to this alone, Ms. Sushma's life was saved, but she received severe burn injuries because she directly fell on the FBD 3.

4.11 Damage to the Conference Hall of the neighbouring industry, M/s Virupaksha Organics Ltd.

Due to the Explosion overpressure wave, the glass windows and the false ceiling of the conference hall of the neighboring industry, M/s Virupaksha Organics Ltd., fell down (**Figure 4.14**).

Figure 4.14

4.12 Increase in the Production in the months of April, May and June 2025

The entire civil structure of the plant was designed, constructed and commissioned as per the production requirement in 1994.

Many big, bulky and heavy equipment/machinery were added without adding any new civil structure in the subsequent years for the increase in the production. This was done by continuously altering the existing civil structure. Because of the increase in production over the years, addition of new equipment/machinery and increase in the working manpower took place. Alteration in the same civil structure was done many times for replacing the old technology with new technology equipment. All this has happened in the same space that was available at the incipient stage of the plant in 1994 (Annexure 21: Statement of Executive Vice Chairman, Mr Chidambaramnathan).

In the month of April 2025, a new GLR 5 of 5 kL capacity was commissioned. The production till March 2025 was in the range of 5-5.5 tons per shift, but must have increased to average 6.5 tons per shift in the month of June 2025, i.e. about 30% increase in production.

From the employee's attendance list, it was observed that there was increase in manpower intake, so the density of workers has increased. For increased production, company needed more manpower, and must have recruited them by compromising the qualification and experience

criteria. This newly recruited manpower, without having any experience, were sent to the shop floor for working. These people were not at all provided any kind of operational/working/safety training.

As the production from GLR 5 got added in the existing production system, the entire production line, viz. the Spray dryer, the FBDs, the SFD, Pulverizers, the Blenders, the Sifters, the Sealing machine, the testing instruments in the QC etc., all came under a huge work load stress. At the same time, the workers also came under a heavy work load stress. As per the statement of Chemist of QC department, they came under a heavy pressure of work load, that while the testing of material of one batch was going on, they had to go down stairs for collecting the samples of the new batch. (**Annexure 15: Statement of Chemist, QC**). To take care of this increased production, company even recruited staff in various department, e.g. one new trainee Chemists had joined the QC department in May 2025.

Due to the old civil structure and deletion and addition of old and new equipment/machinery respectively, there was vibration in the structure. This was confirmed by many employees and reflected in the statement of Golla Naresh, Chemist, QC (Annexure 15).

In the summer months, many of the working people from other states, e.g. UP, Bihar, Orissa, West Bengal etc., go on vacation. These are the experienced people who fell short in the months of April to June. To take care of these vacancies, company recruits fresh manpower who are not having any experience.

Because of increased production, the maintenance of the equipment/machinery must have been compromised. Even the Sealing machine, which was the only one, must have had to work round the clock, with this increased load. The house keeping must have also been compromised.

All these contributed in increasing the dust and the dust cloud inside the production premises.

Given the above discussed activities in the last 3 months prior to the accident, i.e. increased production, increased incompetent manpower, no maintenance, and overtime working of the machinery and the manpower, and lack of safety culture, only an accident was waiting to happen, and ultimately happened on 30th June.

4.13 Stocking of hazardous Sodium Chlorite ($NaClO_2$) drums

Immediately upon explosion in the Packing area, fire in the form of missiles got flung into air along with the explosion overpressure wave. Due to these fire missiles, fire got erupted in the Engineering Stores/HR building and on the Tarpaulin covering the new project equipment in the Open area opposite to the Wash rooms (**Figures 1.2, 3.5 (a)-(d)**). This huge high intensity fire covered a huge area spanning from the rear side of the car of the General Manager and the entire open area where new project equipment was placed. All the 5 persons who died in this area were severely charred beyond recognition (**Figures 1.4, 4.15 (a) & (b)**).

Figure 1.4: Charred body at the back of the car

Figure 4.15 (a): Charred body at the FRP tank

Figure 4.15 (b): Charred bodies in the opposite open area

The analysis of the postmortem reports revealed that one lady staff, Ms Rukhsana Khatum, QC department, died of severe burn injuries, and the body was found near FRP tank and Wash room area. The Committee learnt that there was traumatic amputation of the right lower leg obliquely below the knee as mentioned in the Postmortem report. Actually dying of any person in fire would burn the person but would never shatter the body of a person into pieces. This gave an indication of the generation of a strong pressure wave near the impacted person.

During the Committee's visit of Sigachi's Dahej plant, it was informed by the company that they are using Sodium Chlorite as an oxidizing agent for getting good white colour. But at Sigachi Pashamylaram plant, the management did not reveal anything w.r.t the use of Sodium Chlorite, in fact they denied of using Sodium Chlorite in any process.

In the inventory provided by Sigachi (**Annexure 11: Inventory on 29.06.2025**), Hydrogen peroxide (H_2O_2) of about 300 kg and Sodium Chlorite of about 1100 kg is mentioned. This Sodium Chlorite was being purchased by Sigachi from M/s Zed Chem Private Ltd., Mehsana, Ahmedabad. This Sodium Chlorite was being supplied in MS drums each containing 50 kg material, and the colour of the drums was blue (**Figure 4.18**). Sodium Chlorite, being highly hazardous and

explosive in nature, was supposed to have been stocked at a very safer and isolated place inaccessible to any ordinary person.

In the first meeting, the Committee asked Sigachi about the usage of Hydrogen peroxide or any other oxidizing agent in the process. The company told that they were using small quantity of approximately 100 ml of H_2O_2, and they never mentioned anything about the usage of Sodium Chlorite. In fact, they have not mentioned any information about using of any oxidizing agent in the process flow chart submitted to Government authorities.

On detailed investigation, it was concluded that Sigachi must have placed these highly hazardous and explosive Sodium Chlorite drums or any other high explosive material just in front of the common toilets, being used by the employees, in the open area without any safety. It was only because of the fact that the limb of Ms Rukhsana was found amputated where by the Committee realized that a second explosion must have taken place in that area.

Because of the fire missiles from the first major explosion, huge heat got generated in this area and Sodium Chlorite drums or any other high explosive material must have started exploding. This second explosion was of lower intensity as compared to the first explosion.

Later, on studying the videos of the incident taken by drone camera, Committee observed many rusted empty drums placed haphazardly on the septic tank of the company (**Figure 4.16**), and which were absent when the Committee inspected that place.

Figure 4.16: Sodium Chlorite empty drums on the Septic tank

On brainstorming, the Committee came to the conclusion that these drums must have been shifted to some other place inside the factory premises only. After detailed analysis, the Committee zeroed in on the rear far end of the Finished goods warehouse area.

An inspection was conducted in the presence of Tahasildar, Patancheru, and the Police on 20th August, and found 35 rusted empty drums of Sodium Chlorite of 50 kg each on the ground floor open space in the back of Finished goods warehouse (**Figures 4.17 (a) & (b)**). One empty blue drum of Sodium chlorite was found from the Pump house near the water tank (near the septic tank) (**Figure 4.18**).

Figure 4.17 (a)

Figure 4.17 (b)

Figure 4.18: Sodium chlorite drum at Pump house

These 36 drums have now been kept under Police custody in the Administrative office of Sigachi above the Security office. After this, Sigachi agreed that they were using around 20 kg of Sodium Chlorite per day. The authorities shall look into this matter related to the stocking of Sodium Chlorite drums.

4.14 Analysis of the Post Explosion remnants of the structure that helped to reach the root cause of this explosion

When the committee initiated the investigation, the accident site was cleared of all the damaged equipment and the debris, with no opportunities for any lead for causes of the explosion. All the remnants of the burnt equipment and the debris was shifted to a nearby designated open industrial plot by the District Administration. The actual accident site had been reduced to a ground and mangled remains of the building. However, the videos and photos taken by drone camera by the District Administration were of immense use.

Figure 4.19: Marking of Areas on Front view of the Standing Structure

Figure 4.20: Marking of Areas on Side view of the Standing Structure

The Committee studied the burnt and affected equipment/machinery and all other material that were lying in the debris at the designated industrial plot for analysing the flow and impact of heat and overpressure wave generated in this incident. The Committee also studied in detail the signatures of fire, smoke and explosion on the remnant structure available at the site. The committee also studied and analysed the videos and pictures captured by the drone camera during search and rescue operations. Fire and explosion forensic engineering principles were employed on all these to study the signatures of fire and explosion. The evidences were gathered, which after detailed analysis led to the root cause of this accident. The reverse engineering calculations led to the epicentre of explosion, and hence the exact cause of source of the initiation of fire and explosion could be reached with conformity.

The study confirms the following observations:

- Sigachi Industries accident on 30th June was initiated by fire followed by **Dust cloud explosion**.
- Fire was initiated due to inefficient operation of the Sealing machine located in the Packing area.
- The Sealing machine must have been operated by an unskilled, unqualified and untrained helper at the time of accident.
- The Sealing machine has been identified as the only ignition source in the Packing room because it was the only machine available there that has the potential to ignite the LDPE bags and start flaming combustion in that area.
- Based on a detailed fire and explosion forensics study, the Committee traced the epicentre of the explosion as the Packing area involving MCC dispersed as dust cloud.
- The greatest physical evidence for this accident that it has indeed got initiated in the Packing area were available at the site in the form of two drifted columns, one at the Blender 1 and the other at the Pulverizers 2 & 4 area, both falling on the west and southwest direction of the Packing area respectively.

1) RCC Column at Blender 1: There are three columns in a row. The column in the centre is the round one. It was observed that this column got broken at its top most portion where it was attached to the beam and slipped towards west direction. The drifted position of this column exhibits that it has received huge shock from an overpressure wave from the east direction. After dislocating from its position, the top portion of the column drifted towards west direction and settled by resting against the RCC slab. The reinforcement steel bars which got exposed also traversed along with the column. It is evident that this was due to the impact of the overpressure wave generated in the Packing area (**Figures 4.21 (a)-(g)**).

2) RCC Column at Pulverizers 2 & 4 area: Above Pulverizers 2 & 4 area and Dust collector area, Filter presses 1 & 2 were located. Screw conveyer feeding to SFD was also hanging from the ceiling of Pulverizers 2 & 4 area. The common rectangular column in this portion on which beams from four sides were resting got drifted towards southwest direction, and rested on the RCC slab. It is evident that this was due to the impact of the overpressure wave generated in the Packing area (**Figures 4.22 (a)-(d)**).

   Due to drifting of this column, the slab below Filter presses 1 & 2 became support less and due to heavy load of Filter presses 1 & 2 and Screw conveyer, this slab fell down. Thus Filter press 1 fell down completely and Filter press 2 remained hanging because of its more length.

(a)

(b)

(c)

(d)

(e)

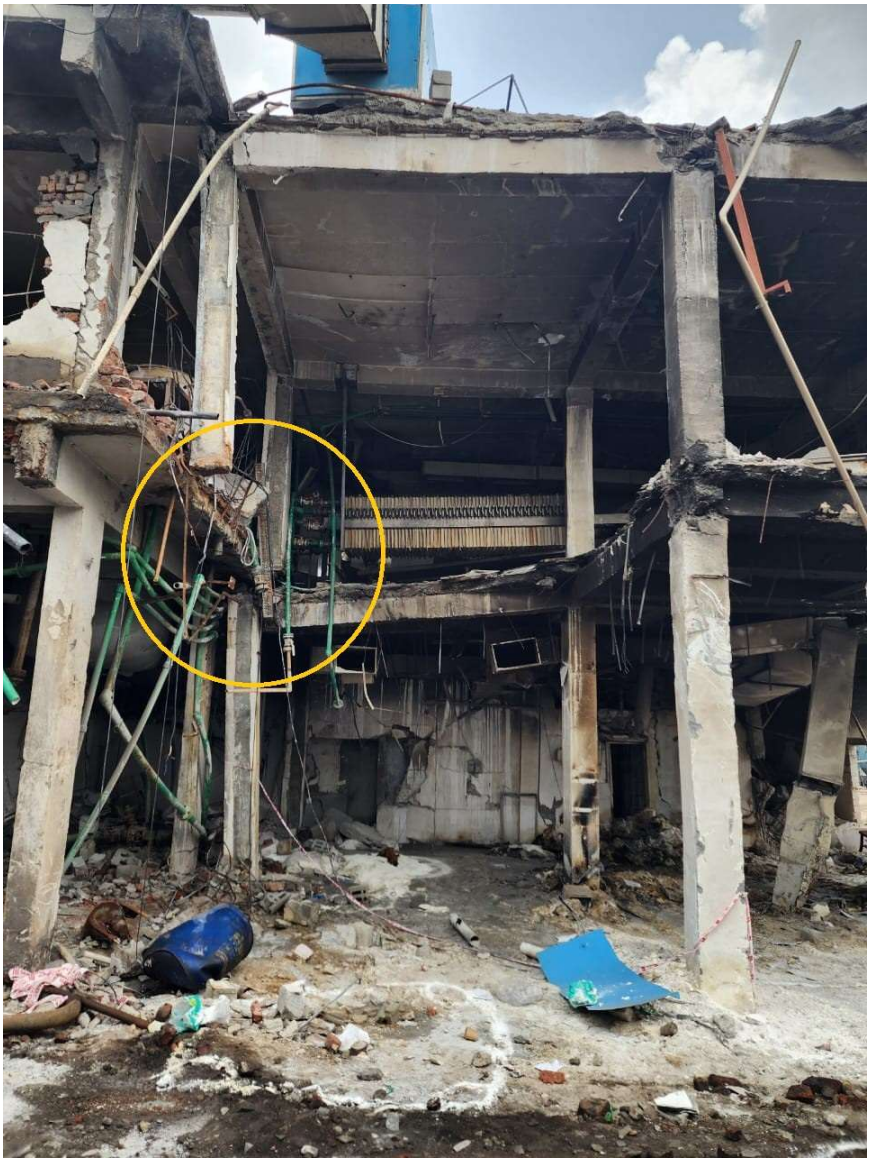
(f)

(g)

Figures 4.21 (a)-(g): Round Pillar at Blender 1

(a)

(b)



(c)

(d)

Figures 4.22 (a)-(d): Pillar at Pulverizers 2 & 4

- The overpressure generated due to explosion in the Packing area shattered RCC structures, brick walls and travelled to the surrounding units. The overpressure generated projectiles hit different locations and initiated secondary fires in all directions, and caused further damage.
- The presence of dust in every corner of the premises (burning of workers from all sides), formation dust cloud as a result of exponential decomposition and combustion of the MCC in the packed bags, and dispersion of the settled dust and its combustion aggravated the scenario.
- This accident at Sigachi Industries killed 46 workers and evaporated 8 workers leading to a total death count of 54. Thus, the accident is one of the worst accidents of its kind in the world, unseen so far in an industry of similar type, and attracted media headlines throughout the world.

4.15 Root Cause of fire and explosion:

The fire must have got initiated because of burning of double layered LDPE bags during sealing operation on the Sealing machine. Due to burning of double layered LDPE bags a huge heat got generated which in turn burnt the outer HDPE bag. This generated still a huge heat and real flame of fire was produced. The Packing area was a confined and congested area, and dust

cloud of MCC was readily available. The flame thus generated ignited the dust cloud in the atmosphere of the Packing area which generated huge overpressure wave, and also due to the exponential decomposition and burning of huge quantity above 17 MT MCC powder lying in the vicinity huge heat was generated. Hence, fire and **Dust cloud explosion** got initiated near the Sealing machine in the Packing room generating an intense shock wave and a huge heat and fire. The flames height was more than 25 m.

The smoldering fire that lasted for more than 18 hours and the bodies of many workers were still lying for more than 16 hours had really cooked and charred the bodies beyond recognition.

4.16 Conclusion

i. The fire must have got originated due to burning of LDPE bags triggered by flame/ heat generated at the Sealing Machine due to its mal operation.
ii. Huge heat of fire thus must have got generated because of flaming combustion of LDPE bags followed by HDPE bag.
iii. There were about 700 open bags of MCC material lying in the vicinity to be weighed and sealed, which subsequently caught fire.
iv. Explosion occurred when this heat generated as explained in the above points initiated ignition in the dust cloud in the atmosphere near about the Sealing machine.
v. The basic reason for this explosion was about 30% increase in the production after March 2025.
vi. This increase in production that too in the summer months where most of the regular experienced workers from Bihar, Uttar Pradesh, Orrisa, West Bengal etc. go on vacations, made the management to hire unqualified, inexperienced, fresh and completely incompetent workers to work in hazardous atmosphere.
vii. This increased production increased the workload on the men, machineries and the equipment.
viii. Machineries and equipment maintenance also must have been compromised.
ix. Safety of the machineries and men was also compromised.
x. Housekeeping was also compromised, and hence huge quantity of dust was present on the floor, equipment/machineries and also in the atmosphere in the form of dust cloud.

xi. Because of this production rise, huge quantity of MCC was placed throughout the premises. Above 122 MT of MCC was present inside of the plant and more than 17 MT MCC was placed only in the Packing area ready for weighing and sealing just immediately prior to the accident.

xii. All these gross negligences on the part of the management alone are responsible for this accident which killed 54 innocents and injured several others.

CHAPTER V

Lapses

Lapses such as not following standardized procedures, disregarding regulatory body recommendations, neglecting periodic inspections and equipment congestion, among others, may lead to accidents. The roles and responsibilities entrusted to organizational personnel at all levels must be discharged with utmost seriousness. The following are the identified lapses from Sigachi Industries and Department of Factories.

5.1 Lapses of M/s Sigachi Industries Ltd.

1. The Telangana State Pollution Control Board (TSPCB) has issued CFE for Expansion Order No. PASHA/271/PCB/ZO/RCP/2022-59 dt. 19.03.2022, to M/s Sigachi Industries Ltd. to expand the manufacture of MCC from 15,200 kgs/day to 25,200 kgs/day. The entire civil structure of the plant was designed, constructed and commissioned as per the production planning done in 1994.

   The Industry got the approval to expand the production capacity and installed the additional equipment required on the same Structure. The industry did not strengthen the civil structure.

   This additional capacity after 2022 almost added around 65% additional load on the structure and the space, increased the manpower requirement, and also release of the dust.

   This housing of many equipment in very limited space has caused congestion and hazardous situations in the processing and storage areas of the industry, and led to the present disastrous number of fatalities.

2. Material Safety Data Sheet (MSDS) provided by Sigachi Industries did warn that MCC may from combustible/explosible dust concentration if dispersed in air. Further, GHS classification in accordance with 29 CFR 1910 (OSHA HCS) also confirmed that MCC is combustible dust. Knowing that MCC is a combustible dust, Sigachi Industries did not take any precautions to mitigate the formation of dust, collection of dust and address the risk of ignition.
3. The inventories list given by Sigachi Industries (Annexure 11: Inventory on 29.06.2025) has so many chemicals not related to the given MCC process. Why did the company stored such a large volume of chemicals and where were these chemicals being stored?

4. Poor housekeeping of the entire industry was noticed. Vacuum dust cleaning and dust collectors were not provided as per the requirement in the shop floor area.

   The photographs shown in **Figures 5.1 – 5.4** suggest the accumulation of dust on of different equipment and storage of MCC packed bags within the confined space exhibiting poor housekeeping.

Figure 5.1: Dust accumulated on Pulverizer

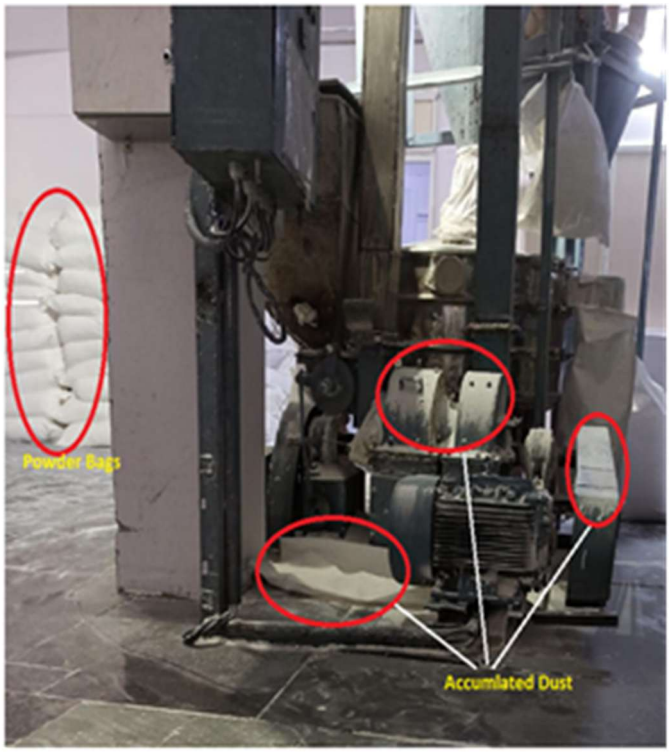


Figure 5.2: Dust on the equipment with nearby MCC powder bags

Figure 5.3: MCC powder bags in confined space

Figure 5.4: Dust lying on the ground

5. Adequate firefighting equipment and fire hydrant system were not provided although the hazardous nature of their operations known to them.
6. The committee's investigation revealed that Sigachi Industries did use sodium chlorite in their process. But this was not revealed to the committee members, and the sodium chlorite drums might have exploded post the dust explosion and caused the death five workers. Sigachi Industries tried to hide this fact.
7. As per Telangana Fire Service Act 1999, the industry was mandated to have fire hydrant, water sprinkler system, heat and smoke detection system and water tank fire fighting pump house. However, none of these were available with the industry. This was a blatant violation of life and safety of all industry personnel.
8. The following lapses were found on the scrutiny of the submitted documents to the committee:

a. EHS manual claims that the company has adopted ISO 14001:2015 and 45001:2018. However, no certification to this effect by an external auditor is available.
b. The emergency preparedness and responses document, SH/EHS-QM/02/23, was internally prepared and lacks specific actions to be taken during emergencies. Due to lack of risk assessment studies and non-availability of credible accident scenarios, the emergency preparedness was not adequate.
c. Since the industry is classified as highly hazardous and red category, for identified hazards, no engineering solution was provided. For all hazards, only PPE is suggested. This clearly exposed the lack of safety expertise within the company.
d. Third party assessment report on OHS was not done, although mandated
e. The document also claims that the periodic safety trainings were given to the workers. This was not possible when there was no safety expertise available with the company with adequate qualification and experience.
f. The majority of workers who were unskilled and unqualified were found to be from different states, viz. Bihar, Uttar Pradesh, Odisha, and West Bengal, speak and understand different languages, that being the reality, how the training programme provided to these workers. The few photographs provided by the company only demonstrate the safety day celebration and simple firefight.
g. The power point presentations as training records, provided by Sigachi Industries, did not specify Pashamylaram location, was in English language and how this training was given to the workers at this plant site who had educational levels below secondary.
h. Sigachi Industries did not provide any documentary records showing periodic preventive maintenance schedules of equipment
i. The SPD manual did not show any provision of process control system, SOPs for routine operations and SOPs to address process problems
j. The internally carried out HAZOP report did not provide details such as the team members and their expertise, failed to recognize dust cloud formation, and credible hazardous scenarios due to process deviations.
k. The committee reviewed the maximum credible dust explosion accident scenarios in various sections and results are presented in **Table 5.1**.

Table 5.1: Maximum credible dust explosion scenarios in various sections

S. No.	Location	Dust Source	Confinement area, ft^2	Ignition Source
1.	Pulverisers 2 and 4 area including sifter	Available	There was no partition between FBDs area (903.84), SFD area & Dust collector (521.48) and Pulverizers area (1067.46). So total area was 2492.78	Generation of static current / ignition from electrical source / hot surface
2.	Dust collector unit	Available		Generation of static current / ignition from electrical source / hot surface
3.	Blender I area including two sifters	Available	249.33	Generation of static current / ignition from electrical source / hot surface
4.	Packing area	Available	397.13	a) Generation of static current / ignition from electrical source / hot surface b) Malfunctioning of foot operated Sealing machine
5.	Blender II area including two sifters	Available	170.73	Generation of static current / ignition from electrical source / hot surface

6.	Spray Drying Chamber Area including spray drying chamber, sifter, and spray dryer cyclone	Available	392.52	Generation of static current / ignition from electrical source / hot surface
7.	Quarantine room, secondary dryer area, Metal detector and seating arrangements for personnel	Available	239.19	Generation of static current / ignition from electrical source / hot surface
8.	Pulverisers 1 and 3 area	Available	448.46	Generation of static current / ignition from electrical source / hot surface

The additional source for ignition element of Dust Explosion Pentagon, i.e. (i) Dust, ii) Oxygen, iii) an Ignition source, iv) Dust dispersion, and v) Confinement, in the form of Sealing machine is available in the Packing area.

Had this simple exercise been carried out, and safety measures were provided, the major accident and death of 54 workers could have been avoided. The above analysis revealed Sigachi industries' poor internal safety assessment capability and competency.

l. As per Indian factory act 1948 sections 87, 41 (A), 41 (H), Environmental Protection Act 1986, MSIHC rules 1989 and Explosive act 1884 mandate, Sigachi Industries did not provide proper fire and emergency exits. The committee inspected the emergency exits, and found that the exit and ladder were corroded and unsuitable for use during emergency. The photograph of corroded ladder us shown in **Figure 5.5**. This is a gross violation.

Figure 5.5: Photograph of corroded ladder used as exit

m. As per the documents provided by Sigachi Industries, details of periodic announced and unannounced mock drills to generate safety awareness among the employees on what is to be done in emergency situations were not available.

n. A close look at the inspection reports of 2019 to 2024 reveals that, the inspection status 'No' was complied in subsequent year. But the same status in the checklist remains 'No' in the next year's inspection report. This disparity amounts to falsifying of information to the officials of Department of Factories, Government of Telangana. This is a gross violation of Factory rules and playing with the lives of innocent people.

o. Sigachi Industries did not carry out any structural integrity audit over the years.

9. Sigachi Industries did not recruit manpower for different plant operations with specific educational qualifications and skills, e.g. the plant in-charge Mr. K P Patel is only an intermediate, and most of the workers did not have any qualification to operate equipment such as reactors, SPD, FBDs, Pulverizers, Blenders, Dust collection system, Sealing machine etc.

10. The fire and safety officer of the plant did not have any industrial safety related qualification as per Factory Act 1948.
11. Indian factory act 1948 sections 87, 41 (A), 41 (H), Environmental Protection Act 1986, MSIHC rules 1989 and Explosive act 1884 mandate industries like Sigachi Industries shall carry out periodic Safety Audits, Risk Assessment, Process Hazard Analysis, Dust Hazard Analysis and HAZOP studies. Sigachi Industries did not attempt to carry out any of the above over the years even when MCC is recognized as a combustible and explosive dust.
12. The mandatory personal protective equipment such as helmets, safety shoes, respiratory protection mask and hand gloves were not provided to the workers, even during the rescue operations the injured workers were not seen wearing any of the above. Thus, Sigachi Industries lacks safety culture and awareness. The photograph of a worker without any PPE is shown in **Figure 5.6**.

Figure 5.6: Worker without any PPE

13. Sigachi Industries housed QC/QA offices and laboratories on the First floor above the hazardous, combustible dust producing multiple operations. Sigachi Industries did not use common sense and engineering protocols in setting up QC/QA labs above the production labs knowing the vulnerability and potential of dust explosion.

14. Sigachi Industries did not install ignition arrester and flame proof electrical fittings in the entire shop floor
15. It is a pity to note from the inspection report of year 2024, under section Welfare Amenities, Sigachi industries did not even provide first aid facilities (as per section 45, rule 63 (C) of Factory Act 1948) in spite of 35 years of operations.

5.2 Lapses of Department of Factories

Department of factories has been established for taking care of the welfare, health and safety of the workers in industries. Their primary duty is enforcing labour laws and promoting safe working environment in the industries as per Factory Act 1948.

In the case of Sigachi Industries accident, the following lapses from Department of Factories were noted:

1. The factory inspections carried out over the years (2019 – 2024), appear to be non-serious activity and did not reflect the factual violations of the industry.
2. A close examination of the inspection checklist clearly reveals several disparities: checklists are random, non-comprehensive, and did not follow any hierarchy of plant categories or factory rules and state regulations.
3. In inspection report of year 2024, carried out on 12.12.2024, under chemical orders starting from serial nos. 1.1 to 8 certify status as 'YES' which is not factual. Sigachi Industries did not have any safety systems, emergency shut off system, dump tanks, sensors with alarm systems, SOPs for hazardous operations, onsite emergency plan as per MSIHC rules 1989 and risk and HAZOP report carried out by third party. This very clearly exposed the callous attitude of the inspecting officer of Department of Factories. This amounts to incompetency of his engineering and analytical capabilities.
4. In the same report of year 2024 at checklist no. 22 under Safety Provisions section, the inspecting officer has noted 'Yes' to 'all walls, structure in the factory are in good condition'. How the inspecting officer arrived at this conclusion?
5. Under Safety Provision section at checklist nos. 15 and 16, the inspecting officer has certified "Yes". This is again not factual and Sigachi Industries did not employ an educationally qualified safety officer and neither had it constituted safety committee. Repeatedly, inspecting officers incompetency and callous attitude are exposed.

6. Sigachi Industries shop floor and the plant area were highly congested with intensive manual labour. The inspecting officer has certified unobstructed fire fighting. How was the status certified as 'Yes'?
7. Under Chemical Orders checklist no. 11, the inspecting officer has certified 'Not Applicable' status to "whether drier /ovens examined by responsible person designated by occupier or manager", On what basis the inspecting officer certified as non-applicable when Sigachi Industries had different types of driers and ovens? Why was this negligence from the inspecting officer?
8. An examination of previous five to six years inspection reports has several disparities other than factual information and providing stern warnings to the industry for enhancing its plant safety.
9. The inspecting officers seem to be unaware of the auditing procedures and its objectives.

CHAPTER VI

Recommendations

All the information made available to the Committee was thoroughly examined and fully utilized in analyzing the accident scenarios, identifying root cause, and determining lapses. The information was received from various Government departments, Sigachi Industries and their plants at other locations, neighbouring industries, and hospitals where the injured were treated. Some critical information such as CCTV footage from the Sigachi Industry, recordings of the Committee's first visit were not available to the Committee. However, the Committee managed to get the CCTV footage from M/s Virupaksha Organics Ltd. The non-availability of some data and the late receipt of some information added to the delay in submitting this report to the Government of Telangana.

6.1 Dust Explosion Prevention and Mitigation for Similar Industries

Sigachi Industries Accident has taught many lessons to learn and implement in industries that manufacture and handle combustible dusts. The committee carried out an extensive fire and explosion forensic investigation and examined the root cause for the accident. Based on the investigation, given below are the recommendations for similar type of industries which has the potential for combustible dust explosions. This accident is yet another blatant failure to recognize that process safety study is vital to prevent dangerous incidents.

Although Indian Factory Act 1948 and Telangana Factory Rules 1950 has references for fire and explosion controls, but for dust explosion control, it is not exhaustive. The NFPA® 660, Standard for Combustible Dusts and Particulate Solids, 2025 Edition, is exhaustive and should be referred.

NFPA 660 has been written by consolidating the requirements of NFPA 652, Standard on the Fundamentals of Combustible Dust; NFPA 61, Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities; NFPA 484, Standard for Combustible Metals; NFPA 655, Standard for Prevention of Sulfur Fires and Explosions; NFPA 664, Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities; and NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing,

Processing, and Handling of Combustible Particulate Solids. In NFPA 660 individual topics are available for specific industries, and this standard provides safety requirements for all combustible dusts and particulate solids.

Creating a good safety culture within the organization should be the primary responsibility of the owner or occupier of the industry. The committee observed from the documents submitted by M/s Sigachi Industries Ltd. and Inspector of Factories, and from the information obtained from workers for investigation that this Industry did not have an understanding of safety culture.

1. It is the responsibility of the owner or occupier for retention of the documentation records in safe custody and in digital form in a dedicated flame and blast proof building so that these documents are available for post major accidents analysis. The server computer storing such documents should be well protected from fire and explosions. Some of the important documents are: i) Training records, (ii) Equipment inspection, testing, and maintenance records, (iii) Incident investigation reports, (iv) Dust hazards analyses and resolution of DHA recommendations, (v) Process and technology information, (vi) Management of change documents, (vii) Operational readiness review documents for start-up, (viii) Emergency response plan documents, (ix) Contractor records, x) SOPs, and xii) CCTV data and footages.
2. Material Safety Data Sheets (MSDS) should clearly specify the dust combustibility characteristics of the raw materials and products. Warning for dust combustion and dust explosion potentials should be stated at appropriate locations within the MSDS.
3. MSDS should be circulated through intranet email or printouts, or as appropriate to all the employees of the industry to create an awareness of the dust combustion and explosion potential.
4. A clear cut process details (PFD), that is currently practiced, shall be submitted by all the industries with a certificate that no chemical other than that given in the PFD is used in their process. The inventories of the chemicals shall match to the process details and no chemicals other than the ones employed in the process shall be stored or procured by the Industry.
5. Dust combustibility characteristics (MIE, MITL, MITC, LOC, MEC) should be assessed for all materials and products.
6. An industry producing flammable dust with particle size ≤ 500 μm in closed equipment should meet the following criteria:

a) For flammable dust MIE ≤ 30 mJ, the parameters such as MITL and oxygen concentration should be monitored and controlled below LOC

b) In addition to the above, for flammable dust MIE ≤ 10 mJ, should be provided an explosion isolation, explosion suppression system or other dust prevention measures

7. Industries manufacturing and handling combustible dust raw materials and products, should scrupulously and strictly, avoid engaging unskilled and educationally unqualified workers for plant operation.
8. The owner or occupier should ensure an effective communication methodology across workers at all levels, especially, for Safe Operations, behaviour, and trust, thus create a good culture within the organization.
9. Dust Hazards Analysis (DHA) should be carried out for all new and existing processes equipment, and compartments dealing with combustible dust according to NFPA Standard 660.
10. The owner or occupier of the Industry is responsible for carrying out a thorough DHA study.
11. The DHA should identify and evaluate all potential fire, flash fire/deflagration, and explosion hazards and provide engineering recommendations to manage the hazards
12. The compliance to the recommendation on DHA study should be communicated to the District Inspectorate of Factories.
13. The final outcome of the DHA study should be displayed at the meeting locations and at every process compartments, to enable create awareness among the workers.
14. The DHA should be updated once in every 3 years and on any management of change such as expansion, new construction or modification or replacement of an existing machinery/process.
15. Near miss incidents of dust cloud formation, combustion of dust and minor explosions should be thoroughly analysed and hazard control measures should be implemented after brainstorming and identifying the lead causes.
16. The near miss incident should be the “talk of the plant” until and unless every worker irrespective of his stature is aware of the causes and understands the precautions to avoid its recurrence.
17. Accidents involving near miss or minor loss, due to fire and explosion from dust combustion, should be investigated thoroughly, and appropriate safety measures to avoid its recurrence

should be implemented by consulting experts. Such incident reports should be shared to similar type of industries in the best interest of the manufacturing community of Industrialists.

18. Risk Assessment Study by a third party expert should be carried out to decide the protections measures for dust combustion and explosions.
19. A qualified and knowledgeable design engineer should be consulted for preparing performance-based design for dust combustion potential (affected) systems and their associated hazards such as Fire, Flash fire and Explosion scenarios.
20. The performance based design should cover all the objectives such as Life safety, Structural Integrity, Mission Continuity, and Mitigation of Fire Spread & Explosions, and Release of Hazardous Materials.
21. The owner or occupier is responsible for generating SOPs and should be made available to workers for safely operating the plant and equipment to prevent and mitigate fires, flash fires, and explosions from combustible dusts or particulate solids.
22. SOPs for routine operation and maintenance should recommend suitable personal protective equipment (PPEs).
23. Flame-resistant garments should be designed as per NFPA 2112 Standards.
24. Flame resistant garments should be used against localized flash fire exposures only.
25. The notion that Personal Protective Equipment (PPEs) are the solution to mitigate hazards, is absolutely wrong. Engineering controls are the best to minimize or mitigate the hazards related to process safety. PPE's should be recommended only after establishing the engineering controls to minimize the impact of the hazard on the worker.
26. All equipment(s) designed for the prevention, control, and mitigation of combustible dust fires, flash fires, and explosions should be inspected, tested, and maintained in accordance with the applicable NFPA standards and the manufacturers' recommendations, by a competent authority.
27. Compliance to above point 25 should be mandatorily reported to the District Inspectorate of factories.
28. Highly skilled and educationally qualified engineers should be appointed as process in-charges of the plant.
29. Workers who are entrusted with operating the plants must be educationally qualified so that they will be able to use their presence of mind, knowledge to immediately react to the process

upsets that could potentially turn into a major accident. The owner or occupier shall be held responsible for any violations to this recommendation.

30. The above point 28, shall be monitored by the concerned district regulatory authorities.
31. Safety engineer and safety department is a must in all the combustible dust manufacturing industries.
32. It is the responsibility of the occupier and the District Inspector of Factories to ensure that the appointed safety engineer has adequate qualification and sound knowledge on the hazards, with capabilities to engage the workers for a safe behaviour, operation, and housekeeping.
33. Training programs should be organised periodically to all the employees, contract and temporary workers on the combustible dust hazards and the dangerous risks to which they might be exposed.
34. Onsite Emergency Preparedness plan should be prepared on the basis of Risk Assessment.
35. The above emergency response plan should clearly identify evacuation routes, and determine the plant site safety rules.
36. Emergency and evacuation routes should be displayed in every building or compartment of the work area in all the existing industries with glittering sign boards.
37. The emergency response plan and procedures should be reviewed and validated at least annually and as required by process changes.
38. Employment of highly reliable, proven and qualified contractors are strongly recommended for the installation, repair of machinery, and fire and explosion protection equipment.
39. Whenever possible, it is strongly recommended to engage the manufacturers of the equipment's for a better and efficient service with reliable spares for replacement.
40. Management of change could be successfully carried out by doing an HAZOP or JSA or other appropriate safety evaluation procedures deemed fit.
41. Written procedures (SOPs) should be established and implemented to manage proposed changes to process materials, staffing, job tasks, technology, equipment, procedures, and facilities.
42. Major management of change should be mandatorily communicated to the district authorities for its approval with detailed plan for such change.
43. The owner or occupier shall perform an operational readiness review before the start-up of any new or modified operation.

44. The Indian National Building Code (NBC) Part 3 has specific design recommendations for buildings for fire and safety. Industries handling combustible dusts should be compliant to such codes.
45. If a building or a shopfloor compartment contains a dust explosion hazard outside of equipment, such areas shall be provided with deflagration venting to a safe area.
46. If dust accumulation potential exists at the interior surfaces of a building, extreme care should be given at the construction and design stage itself so as to facilitate cleaning and to minimize combustible dust accumulations.
47. Areas where a dust fire, flash fire, or explosion hazard exists in a building or building compartment (excluding hazards within equipment) should be segregated, separated, or detached from other occupancies to minimize damage from a fire, flash fire, or explosion. The committee recommends to include such buildings under the hazardous area classification zone category 20, and Industries with dust combustion and explosion potentials should be categorized under "Red" and High Risk industry.
48. Where separation is used to limit the dust fire, flash fire, or explosion hazard area, the minimum separation distance should be above 35 ft (11 m).
49. Pneumatic Conveying, Dust Collection, and Centralized Vacuum Cleaning Systems should be designed and maintained to ensure that the air-gas velocity used meets or exceeds the minimum required velocity to keep the interior surfaces of all piping or ducting free of accumulations under all normal operating modes.
50. Heating, ventilation, and air conditioning (HVAC) systems should not be used as the means to collect dusts from localized sources.
51. Air moving devises such as fans and blowers (AMD) and Air material separator (AMS) should be designed according to the standards. AMS without an enclosure should be placed outside of the building. Combustible dusts should not pass through AMD to avoid explosion hazards.
52. AMSs with a dirty side volume of 8 ft^3 (0.2 m3) or greater shall be located outside of buildings.
53. Where an AMD is located in the dirty air stream and the dust/air stream concentration is higher than 10 percent of the MEC, fans and blowers should be of Type A or Type B spark resistant construction or Type C spark-resistant construction protected with spark detection and extinguishment located downstream of the fan.

54. Where an explosion hazard exists, fixed bulk storage enclosures shall be located outside of buildings.
55. Duct Systems should be designed to prevent the accumulation of material by utilizing a tapered transformation piece, with the included angle of the taper not more than 30 degrees.
56. Sight glasses should be of a material that is impact and erosion resistant. Sight glass assemblies should have a pressure rating equal to or greater than that of the ductwork.
57. Abort gates should be constructed of non-combustible materials. Abort gates should be actuated by spark detection or equivalent automatic detection in the duct or pipe upstream of the device.
58. Bulk storage enclosures such as bins, tanks, hoppers, and silos, should be location outside the buildings.
59. Particle separation devices should be designed to control fugitive dust emissions.
60. Vacuum breakers should be installed on negative-pressure systems if the enclosure is not designed for the maximum vacuum attainable.
61. Pressure relief devices for relief of pneumatic over pressure should be installed on positive-pressure systems.
62. Dryers such as spray dryers (SPD), Fluidized bed dryers (FBD) and Spin flash dryers (SFD) should be procured with installed process control systems and interlock systems. For existing systems, if these process control systems are not available, they should be installed on priority basis.
63. Continuous suction or some other means to control fugitive dust emissions should be provided for processes where hazardous quantities of combustible dust is liberated in normal operation.
64. Housekeeping and inspection programs should be developed, implemented, and updated as required. Records of housekeeping programs should be documented.
65. When combustible dust is present, measures to control ignition sources should be put in place.
66. In addition to the requirements of NFPA 51B, all hot work activities should comply with the Factory Act and State rule and other appropriate standards.
67. In areas where a dust flash fire hazard or dust explosion hazard exists, the temperature of exposed surfaces should be maintained below 80 percent of the lower of the dust layer ignition temperature or the dust-cloud ignition temperature.

68. Bearings that are directly exposed to a combustible dust atmosphere or that are subject to dust accumulation, either of which poses a dust ignition hazard, shall be monitored for overheating.
69. Hazardous (Classified) Locations for Electrical Installations*:* The identification of the possible presence and extent of hazardous (classified) locations should be made based on the criteria in Articles 500 and 506 of NFPA 70.
70. The locations and extent of hazardous (classified) locations should be documented, and such documentation should be preserved for access at the facility.
71. Automatic sprinkler system should be installed in areas where dust combustion potential exists.
72. Electrical equipment and wiring within hazardous (classified) locations should comply with NFPA 70.
73. Combustible dust or Particulate solids handling equipment shall be conductive for electrical discharges.
74. Bonding and grounding with a resistance of less than 1.0×10^6 ohms to ground should be provided for conductive components.
75. Where an explosible atmosphere exists and is subject to ignition from an electrostatic spark discharge from ungrounded personnel, personnel involved in manually filling or emptying particulate solids containers or vessels should be grounded during such operations.
76. Industrial trucks should be listed or approved for the electrical classification of the area, and shall be used in accordance with NFPA 505.
77. Where a self-heating hazard is identified during DHA or Reactive Hazard Study, provisions should be in place for managing the consequences of self-heating in storage silos or bins.
78. Foreign materials, such as metals, should be removed before subjecting to any mechanical operations such as pulverizing and blending.
79. Lightning protection, where provided, should be designed, installed, and maintained in accordance with NFPA 780.
80. Where a dust explosion hazard exists, isolation devices should be provided in accordance with NFPA 69 to prevent propagation of flames and pressure between connected equipment.
81. Where a fire hazard exists in an enclosure, manual or automatic fire protection means should be provided.
82. Portable fire extinguishers and fire balls should be provided throughout all buildings in accordance with the requirements of NFPA 10.

83. Standpipes and hoses, where provided, should comply with NFPA 14.
84. Spark/ember detection and extinguishing systems should be designed, installed, and maintained in accordance with NFPA 15, NFPA 69, and NFPA 72.

6.2 Specific Recommendations for Inspectors and Officials of Factories

1. All the inspectors and higher officials of the Directorate of inspector of factories, Telangana Government, should undergo a suitably designed training program, periodically, to enable them to understand as what to be inspected with respect to a specific process, within the ambit of their duties.
2. Adequate budget should be allocated for such training programs.
3. For such training programs, academic and research institutes of higher learning should be contacted.
4. Inspecting officers should ensure that they "leave no stone unturned" while on their job with full sincerity and commitment.
5. Irrespective of the classification and category of the industries, Safety Assessment should be insisted. For adequacy assessment of such reports, a panel of experts in every district and at the state level, should be formed.
6. A mechanism to understand the technological changes with respect to the chemical processes, process control equipment, reactors and other equipment should be constantly explored and knowledge should be built up. This would aid them for successful inspection and implement the required regulations, laws and code of practices.
7. Ease of Business is good and in no way it should allow industries deviate from good and safe practices.

6.3 Major Recommendations for inclusion in the Regulations/Laws under Appropriate Clause

1. All the industries that produce and handle combustible dusts should be classified as RED Category. The building in which such processes are housed, should mandatorily come under the hazardous classification area zone 20. This recommendation would enhance safety and avoid accidents of any kind.

2. CCTV with non-flammable and explosion proof should be mandatorily provided at all the process zones, compartments and buildings. The server that collects the CCTV footage and date should be located in a blast proof and fire proof building. Failure to follow the above recommendation should be viewed seriously and stern warning and show cause notices should be issued, if necessary, closure orders be issued until the above compliance is met.
3. A data base of all investigation reports of accidents in Process Industries should be created and made available throughout the country.

List of Annexures

List of Videos

S. No.	Description
Videos 1	First CCTV footage from M/s Virupaksha Organics Limited.
Videos 2	Second CCTV footage from M/s Virupaksha Organics Limited.
Videos 3	Third CCTV footage from M/s Virupaksha Organics Limited.
Videos 4	Sealing machine operation at Jhagadiya plant, Gujarat.

Annexure 1:

GOVERNMENT OF TELANGANA
ABSTRACT

LET&F Department – Factories – Major explosion occurred in M/s.SIGACHI INDUSTRIES Ltd., Plot Nos.20 & 21, IDA Phase-I, Pashamylaram, Patancheruvu Mandal, Sangareddy District on 30.6.2025 at about 9:20 A.M.– Constitution of Expert Committee to enquire and submit detailed report along with suggestions / recommendations – Orders – Issued.

LABOUR EMPLOYMENT TRAINING AND FACTORIES (LAB-II) DEPARTMENT

G.O.Rt.No.277, Dated: 02.07.2025.

Read the following:

1. Preliminary Enquiry Report dt: 30.6.2025 received from the Director of Factories, Telangana, Hyderabad.
2. From the Prl. Secretary to Government, LET&F Dept., Letter dt: 2.7.2025 addressed to the Director, IICT, Hyderabad.
3. From the Director, IICT, Hyderabad Email Dt:02.07.2025.

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ORDER:

In the reference 1st read above, the Director of Factories, Telangana, Hyderabad has reported that a major explosion was occurred in the Sigachi Industries Ltd., Plot Nos.20 & 21, IDA Phase-I, Pashamylaram, Patancheruvu Mandal, Sangareddy District on 30.6.2025 at about 9:20 AM, where Microcrystalline Cellulose powder is being manufactured to be used in tablets and capsules as binding agent. At the time of incident 143 persons were there inside the factory premises and resulted in the death of 38 persons and several persons injured.

2. Government, after careful examination of the matter, hereby, constituted a Committee with the following Expert Members to examine and submit detailed report along with suggestions / recommendations:

1	Dr. B.Venkateswar Rao, Emeritus Scientist, CSIR-IICT	Chairman
2	Dr. T. Prathap Kumar, Chief Scientist, CSIR-IICT	Member
3	Dr. Surya Narayana, Retired Scientist, CSIR-CLRI, Chennai	Member
4	Dr. Santosh Ghuge, Safety Officer, CISR-NCL, Pune	Member

3. The terms and references of the Committee are as follows:

a) The Committee should identify the causes and establish reasons and the events that lead to the major explosion that occurred on 30.6.2025 in M/s.SIGACHI INDUSTRIES Ltd., IDA, Pashamylaram, Sangareddy District resulting in the death of 38 persons and several persons injured.

b) The Standard Operating Procedures (SOP) for worker safety is followed or not in the industrial unit.

c) Absence or lack of or violation of compliance of chemical and industrial processes that are required to be followed by the Company Management in the industrial unit.

P.T.O.

d) The Committee should suggest / recommend a way forward to avoid / prevent such incidents / events in future in similar chemical and pharma industrial units.

e) The Committee shall examine the management, staff and workers of M/s.SIGACHI INDUSTRIES Ltd., IDA, Pashamylaram, Sangareddy District and interact with various consultants / organizations / persons / Government officials as deemed fit, during its enquiry in the matter.

4. The Committee should submit a detailed report with specific suggestions / recommendations, within one (1) month to the Government.

5. The Director of Factories, Telangana, Hyderabad shall assist the Committee and arrange to provide necessary requirements / information to the Committee, during enquiry.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

K.RAMAKRISHNA RAO,
CHIEF SECRETARY TO GOVERNMENT

To
All the Members of the Expert Committee.
The Director of Factories, Telangana, Hyderabad.
Copy to:
The Director General of Police, Telangana, Hyderabad.
The District Collector, Sangareddy.
The Director, CSIR-Indian Institute of Chemical Technology, Hyderabad.
The P.S. to Spl. Secretary to C.M. (AR)
The P.S. to Hon'ble Minister (LET&F, Mines & Geology)
The P.S. to Chief Secretary
The P.S. to Spl. Chief Secretary to Govt., Industries & Commerce Dept.
SF/SC.

// FORWARDED :: BY ORDER //

SECTION OFFICER

Annexure 2:

GOVERNMENT OF TELANGANA

ABSTRACT

LET&F Department – Factories – Major explosion occurred on 30.6.2025 in M/s.SIGACHI INDUSTRIES Ltd., Plot Nos.20 & 21, IDA Phase-I, Pashamylaram, Patancheruvu Mandal, Sangareddy District – Constitution of Expert Committee Constituted – Inclusion of additional Member – Orders – Issued.

LABOUR EMPLOYMENT TRAINING AND FACTORIES (LAB-II) DEPARTMENT

G.O.Rt.No.283, Dated: 07.07.2025.

Read the following:

1. Preliminary Enquiry Report dt: 30.6.2025 received from the Director of Factories, Telangana, Hyderabad.
2. From the Prl. Secretary to Government, LET&F Dept., Letter dt: 2.7.2025 addressed to the Director, IICT, Hyderabad.
3. From the Director, IICT, Hyderabad Email Dt:02.07.2025.
4. G.O.Rt.No.277, LET&F (Lab-II) Dept., dt: 2.7.2025.

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ORDER:

In the G.O. 4th read above, Government, have constituted a Committee with the following Expert Members to examine and submit detailed report along with suggestions / recommendations on the major explosion occurred on 30.6.2025 in M/s.SIGACHI INDUSTRIES Ltd., Plot Nos.20 & 21, IDA Phase-I, Pashamylaram, Patancheruvu Mandal, Sangareddy District:

1	Dr. B.Venkateswar Rao, Emeritus Scientist, CSIR-IICT	Chairman
2	Dr. T. Prathap Kumar, Chief Scientist, CSIR-IICT	Member
3	Dr. Surya Narayana, Retired Scientist, CSIR-CLRI, Chennai	Member
4	Dr. Santosh Ghuge, Safety Officer, CISR-NCL, Pune	Member

2. In addition to the above Committee Members, Government have decided to include another Expert Member from the field of Fire Safety Operations and Hazardous Control Management. Accordingly, the following person is hereby included as 5th Member of the Expert Committee:

5	Mr. Nilesh Ukunde, Forensic Fire & Explosion Investigator	Member

3. The Director of Factories, Telangana, Hyderabad shall take necessary further action accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

K.RAMAKRISHNA RAO,
CHIEF SECRETARY TO GOVERNMENT

To
All the Members of the Expert Committee.
The Director of Factories, Telangana, Hyderabad.
Copy to:
The Director General of Police, Telangana, Hyderabad.
The District Collector, Sangareddy.
The Director, CSIR-Indian Institute of Chemical Technology, Hyderabad.
The P.S. to Spl. Secretary to C.M. (AR)
The P.S. to Hon'ble Minister (LET&F, Mines & Geology)
The P.S. to Chief Secretary
The P.S. to Spl. Chief Secretary to Govt., Industries & Commerce Dept.
SF/SC.

// FORWARDED :: BY ORDER //

SECTION OFFICER

Annexure 3:

TELANGANA STATE POLLUTION CONTROL BOARD

Zonal Office, 25-35/11, Tulasi Reddy Complex, 2nd Floor,
Opp. Govt. ITI College, R.C.Puram, Sangareddy District - 502 032.
Phone : 08455 280477, website: tspcb.cgg.gov.in

CONSENT & AUTHORIZATION ORDER AFTER EXPANSION - RED CATEGORY

CFO Order No: TSPCB/ZO/RCP/PASHA/271/CFO/2022- 220823691323 Date: 31.08.2022.

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof; Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorization / Renewal of Authorization under Rule 6 (2) of the Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorization under Provision of Hazardous & Other Wastes (Management and Transboundary Movement) Rules 2016, (hereinafter referred to as "the Acts", "the Rules") and the rules and orders made thereunder to

M/s. Sigachi Industries Ltd, (After Expansion),
(Formerly M/s. Sigachi Industries Pvt. Ltd),
Plot No. 20 & 21, Phase – I, IDA,
Pashamailaram, Patancheru (M),
Sangareddy District.

(hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below.

i) Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge	Point of Disposal	Limiting Standards (mg/lt except pH)
1	Washings	10.0 KLD	After treatment in ETP, shall be recycled for cooling tower make-up.	
2	Boiler blow down	0.15 KLD	Shall be send to CETP i.e., M/s PETL, Patancheru, Sangareddy District for further treatment and disposal.	Inlet standards of CETP
3	Cooling tower bleed off	0.50 KLD		
4	Domestic waste water	1.5 KLD		

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions in m3/hr. at peak flow
1	Attached to Horizontally mounted Coal fired tube boiler of capacity 3 TPH	

2	Attached to Coal fired Hot Air Generator of capacity 30 Lakh K. Cal / Hr.	---
3	Attached to Coal fired boiler of capacity 2 TPH **(Standby)**	---
4	Attached to DG set of capacity 500 KVA	---
5	Attached to DG set of capacity 380 KVA	---

iii) Hazardous Waste Authorization (Form-II) [See Rule 6(2)]:

1. Number of Authorization and date of issue – TSPCB/ZO/RCP/PASHA/271/HWM/2022 **Date: 21.06.2022.**

2. The Occupier of, **M/s. Sigachi Industries Ltd,** is hereby granted an authorization to operate a facility for generation, collection, reception, storage, transport, reuse, recycling, recovery, pre processing, co-processing, utilization, treatment and disposal of Hazardous Waste namely.

Sl. No	Category of Hazardous Waste as per the Schedules I, II and III	Quantity	Point of disposal
1	5.1 of Schedule – I : Waste Oil	20 LPM	Shall be disposed to Board's Authorized Recycler / Reprocessor OR TSDF i.e., M/s. Hyderabad Waste Management Project, Dundigal (V), Dundigal Gandimaisamma (M), Medchal-Malkajgiri District / Alternate Fuel & Raw Material Facilities (AFRF) for pre processing.
2	35.3 of schedule – I : ETP Sludge	4.0 TPM	Shall be disposed to TSDF i.e., M/s. Hyderabad Waste Management Project, Dundigal (V), Dundigal Gandimaisamma (M), Medchal-Malkajgiri District / Alternate Fuel & Raw Material Facilities (AFRF) for pre processing.
3	28.4 & 28.5 of schedule–I : Process discarded waste / Off specification products / Expired products	--	
4	Coal ash	--	Shall be disposed to brick manufacturers

This Consent Order is valid for manufacture of the following products along with quantities only.

S. No.	Product	Total Quantity after Expansion
1.	*Micro Crystalline Cellulose (MCC)/ Cellulose Powder/ Powdered Cellulose	25,200 Kgs/day

The industry shall manufacture the above product by mixing both Cellulose (by Hydrolysis) – 5,200 Kgs/day and Cellulose Powder (Powdered Cellulose) - 20,000 Kgs/day.

This Order is subject to the provisions of 'the Acts' and 'the Rules' and Orders made there under and further subject to the terms and conditions incorporated in the Schedule A, B & C enclosed to this Order.

This combined order of Consent & Hazardous Waste Authorization shall be valid for a period ending with the **31st day of March 2027.** *The industry shall pay the consent fees every financial year annually till the validity of the consent order.*

JOINT CHIEF ENVIRONMENTAL ENGINEER (FAC)

To
M/s. Sigachi Industries Ltd, (After Expansion),
(Formerly M/s. Sigachi Industries Pvt. Ltd),
Plot No. 20 & 21, Phase – I, IDA,
Pashamailaram, Patancheru (M),
Sangareddy District.

Copy to the Environmental Engineer, TSPCB, Regional Office, Sangareddy for information. The EE, RO, Sangareddy is further directed to ensure that the industry pays the annual consent fees for every financial year (i.e., April to March)within the stipulated time period i.e , 1st quarter of every financial year (April-June) and the EE, RO, Sangareddy shall report to this office, if any non-compliance by the industry.

SCHEDULE – A

1. The applicant shall make applications through online for renewal of consent (under Water and Air Acts) and authorisation under HWM Rules atleast 4 months before the date of expiry of this consent order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW authorisation of the Board along with detailed compliance report against the conditions stipulated in the CFO & HWA order issued.
2. The industry shall immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions etc.
3. a) All the fugitive emissions shall be controlled with proper measures.

   b) The applicant shall also install the equipment such as wind speed recorder and wind direction recorder.
4. A good house keeping shall be maintained both within the factory and in the premises. All hoods, pipes, valves, sewers and drains shall be leak proof. Floor washings shall be admitted into the effluent collection system only and shall not be allowed to find their way into storm drains or open areas.
5. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E (P) Rules, 1986 & its amendments thereof.
6. The applicant shall comply with the directives/orders issued by the Board in this consent order and at all subsequent times without any negligence on his part. The applicant shall be liable for such legal action against him as per provisions of the Law/Act in case if non-compliance of any order/directive issued at any time and/or violation of the terms and conditions of this consent order.
7. The applicant shall furnish to the visiting officer and / or the Board any information regarding the construction, installation or operation of the effluent treatment system/ air pollution control equipment and such other particulars as may be pertinent for preventing and controlling pollution.
8. The industry is liable to pay compensation for any environmental damage caused by it, as fixed by the Collector and District Magistrate as Civil liability.
9. The industry shall provide a minimum stack height (H) to the DG sets as per the following formula.

   $H = h + 0.2 \sqrt{KVA}$

   KVA = Total generation capacity, h = Height of building where DG Set is installed.
10. All the rules & regulations notified by Ministry of Environment, Forests & Climate Change (MoEF&CC), Government of India in respect of management, handling, transportation and storage of hazardous chemicals and wastes shall be followed.
11. The industry shall carryout monthly environmental monitoring by a National Accreditation Board for Laboratories (NABL) and Ministry of Environment, Forests & Climate Change (MoEF&CC) approved laboratories only and shall submit monthly reports to the concerned Regional office by marking a copy to the Zonal Office.
12. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the notification G.S.R.520 (E), dated 01.07.2003 under the Environment (protection) Amendment Rules, 2003 and G.S.R.448 (E), dated 12.07.2004 under the Environment (protection) second Amendment Rules, 2004. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the

notification G.S.R.489 (E), dated 09.07.2002 at serial No.96, under the Environment (Protection) Act, 1986.

13. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 shall be followed.

14. The applicant shall at his own cost get the effluent samples collected both before and after treatment / samples of emissions collected and analysed from the TSPCB or any other Laboratories which are established as per the guidelines and norms of MoEF & CC, GOI and CPCB, New Delhi, every month for the parameters indicated in the Condition No.1 and condition No. 4 of Schedule B and shall submit in duplicate the report thereof to the Board.

15. The applicant shall provide appropriate Rain Water Harvesting system on the available upstream portion of the plant site.

16. All Solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by:

i) Controlled incineration, wherever possible in case of combustible organic material.
ii) Vermiculture / composting, in case of biodegradable material.
iii) Secure land fill in case of non-biodegradable, chemically active/ hazardous solid waste. Care shall be taken to ensure that the material does not give lechate, which may percolate into ground water or carried away with storm run-off.

17. At any time during the inspection of Pollution Control Board Officers or any other licencing / servicing authorities / if it is observed that the industry is not complying with any of the above conditions leading to pollution problems, this consent is liable for cancellation without further notice and all the services rendered by the servicing departments shall be withdrawn without further notice.

18. All the rules & regulations notified by Ministry of Environment, Forests & Climate Change (MoEF&CC), Government of India in respect of microorganism, genetically engineered organisms or cells shall be followed.

19. The applicant shall exhibit the consent order of the board in the factory premises at a prominent place for the information of the inspecting officers of the different departments.

20. Not withstanding anything contained in this conditional letter or consent, the Board hereby reserves to it the right and power under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and its amendments thereof and under section 21 of Air (prevention & Control of Pollution) Act, 191 and its amendments thereof to review any and / or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.

21. The applicant shall put up two black boards of size 6ft by 4ft at the main entrance to their plant. One board shall contain the specific CFE and CFO conditions, in sufficiently large font size so that it can be read easily from a distance of 10 ft to a normal eye, and other board shall carry, again in sufficiently large font size so as to be able to read from a distance of 10 ft, the latest Water, Air, Noise and solid waste monitoring data as well as the maximum vulnerable zone.

22. The industry may explore the possibility of tapping the solar energy for their energy requirements.

23. The following rules and regulations notified by the MoEF&CC, GOI shall be implemented.

a) Hazardous and other wastes (Management and Transboundary Movement) Rules, 2016.

b) Manufacture, Storage and import of Hazardous Chemicals Rules, 1989.
c) Batteries (Management & Handling) Rules, 2001.
d) E-Waste (Management & Handling) Rules, 2016.
e) Plastic Waste (Management & Handling) Rules, 2016.

24. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules, 1982, to such authority (hereinafter referred to as the appellate Authority) constituted under Section 28 of the Water (Prevention and control of Pollution) Act, 1974 and section 31 of Air (Prevention and control of pollution) Act, 1981.

25. The Board reserves its right to modify above conditions or stipulate any additional conditions including revocation of this order in the interest of environment protection.

26. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.

27. As per the provisions of the Section 19 of the (TS-iPASS) Act, 2014 (Act No. 3 of 2014), the applicant shall be penalized with fine as prescribed by the government from time to time as well as rectification of the defect if he / she or the organization as the case may be fails to comply with the conditions or undertaking in self certification given to the Nodal Agency.

SCHEDULE - B

1) **The industry has to pay Consent fee of Rs. Rs.9,31,900/- for both the Acts upto 31.03.2024 at RO, Sangareddy immediately marking a copy to this office.**

2) **The industry shall pay the consent fees annually from the every financial year to till the validity of the consent order i.e., upto 31.03.2027.**

3) **The payment of annual consent fee for every financial year (i.e., April to March) within the stipulated time period i.e., 1st quarter of every financial year (April - June) is mandatory for the industry. Failing which, the validity of the Consent order automatically stands cancelled and operation of the industry / project without valid Consent attracts penal action under the provision of water Act, Air Act & Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.**

4) **The industry either paying annual fee or total fee for consented period, shall pay the balance consent fee as per the revised rates as applicable from time to time.**

5) **As committed by the industry, shall remove/ dismantle the 10 Lakh K. Cal / Hr Thermic Fluid Heater (Coal Fired), 4 Lakh K. Cal / Hr.Thermic Fluid Heater (Coal Fired), 0.5 TPH Vertical Water Tube boiler Coal Fired Boiler immediately.**

6) **The industry shall manufacture the above product by mixing both Cellulose (by Hydrolysis) and Cellulose Powder (Powdered Cellulose) and shall not use any organic chemicals and solvents.**

7) **As committed by the industry during the meeting, the industry shall manufacture the above products using wood pulp as raw material and shall not involve any chemical reactions of synthetic organic chemicals.**

8) The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S. No.	Water Consumption	Quantity
1.	Process & wash	4.0 KLD
2.	Washings	12.5 KLD
3.	Boiler Feed	3.0 KLD
4.	Cooling make up / Humidification	18.0 KLD
5.	Domestic waste water	2.0 KLD
6.	Gardening / irrigation	1.5 KLD
	Total	**41.0 KLD**

9) A sampling port with removable dummy of not less than 15cm diameter shall be provided to the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.

10) The emissions shall not contain constituents in excess of the prescribed limits mentioned below.

Chimney No.	Parameter	Emission standards (mg/NM^3)
1 to 5	SPM	115

11) The industry shall comply with ambient air quality standards of PM_{10} (particulate Matter size less than 10μm) – 100 μg/m^3; $PM_{2.5}$ (Particulate Matter size less than 2.5μm) – 60 μg/m^3; SO_2 – 80 μg/m^3; NO_x – 80 μg/m^3, outside the factory premises at the periphery of the industry.

Standards for other parameters as mentioned in the National Ambient Air Quality Standards of CPCB Notification No.B29016/20/90/PCI-I, dated 18.11.2009 shall be complied.

The following noise level standards shall be complied:

Noise Levels:	Day time	(6 AM to 10 PM)	- 75 dB (A)
	Night time	(10 PM to 6 AM)	- 70 dB (A)

12) The industry shall not manufacture new products / excess capacity beyond the permitted capacity mentioned in this order without obtaining CFE /CFO of the Board.

13) The industry shall provide above ground level RCC tanks for collection / storage of trade effluents and arrest ground water pollution due to leaks/crack of pipes, tanks and spillages etc.

14) The industry shall not cause any spillages / discharges of chemicals/ effluents on ground. The drums containing chemicals & wastes shall be stored on elevated platform provided with leachate/spillages collection pit. In no case the drums shall be stored on naked ground.

15) The industry shall ensure that there shall not be any change in process technology and scope of working without prior approval from the Board.

16) The washing effluents of 10 KLD shall be treated in ETP and after treatment in ETP, shall be recycled for cooling tower make-up and the remaining effluents of 2.15 KLD shall be lifted to M/s PETL, Patancheru regularly after conforming to the inlet standards of CETP. The industry shall maintain 6 – copy online manifest systems for transportation of effluents generated and a copy shall be submitted to Zonal office, R.C.Puram and concerned RO.

17) The industry shall provide digital flow meters with totalisers at the inlet of the collection tanks and at outlet before sending to PETL, Patancheru.

18) The industry shall operate IP Cameras with PAN, Zoom, 5x or above focal length, with night vision capability, at main gate entrance & at other gates where there is movement of effluent tankers, Solvent tankers, Chemical tankers, Hazardous Waste carrying vehicles & other material carrying vehicles. These cameras shall be connected to the website of TSPCB with minimum backup of three months.

19) As per G.O.Rt.No.286, the industry shall transport the industrial effluents and plying on the roads is allowed between 6 A.M. to 6 P.M. only.

20) The industry shall regularly operate Twin cyclone, Bag filter followed by wet scrubber as APCE to the 30 Laks Kcal/hr Hot Air Generator for controlling the flue gas emissions.

21) The industry shall regularly operate Multi Cyclone Dust Collector as APCE to 3 TPH coal fired boiler for controlling the flue gas emissions.

22) The industry shall operate multi stage scrubber along with online pH monitoring system for control of process emissions. They shall maintain log book for operation of scrubber for monitoring active scrubbing media.

23) The industry shall install and operate scrubbers to the HCL storage tanks of capacity 10 KLx2 nos to avoid the emission escaping into atmosphere.

24) The industry shall provide dedicated area for storage of Ammonia and the ammonia shall be stored in dedicated storage tanks only and shall not store in drums under any circumstances.

25) The industry shall provide water curtain around the ammonia storage tanks for containment of Ammonia emissions in case of leakages.

26) Ammonia sensors shall be provided at vulnerable locations within the industry premises.

27) The industry shall implement the odour control measures at source of generation and from ETP and shall ensure to maintain the same effectively to control odour problems.

28) The industry shall construct the elevated closed shed with impervious lining and leachate collection system for storage of hazardous waste.

29) The industry shall collect & store the hazardous solid waste in an elevated closed shed with impervious lining and leachate collection system.

30) The industry shall lift the Hazardous Waste to Recycler / Reprocessor OR TSDF i.e., M/s. Hyderabad Waste Management Project, Dundigal (V), Dundigal Gandimaisamma (M), Medchal-Malkajgiri District / Alternate Fuel & Raw Material Facilities (AFRF) for pre processing / Cement industries for safe disposal.

31) The industry shall not cause any air pollution / dust nuisance in the surrounding environment.

32) The industry shall not discharge any waste water outside the plant premises under any circumstances.

33) The industry shall pay the balance water cess dues, if any.

34) The industry shall develop a minimum of 5mtrs width green belt all around the boundary of the unit and in vacant places with tall growing trees with wide leaf area.

23) The area allocated for greenbelt shall not be less than 33 % of total area of industry.

35) The industry shall install flow meters to measure the actual water consumption, waste water generated, treated & disposed and maintain a log register as per the meter readings.

36) The industry shall provide separate energy meter to the air pollution control system & ETP and maintain a log register as per the meter readings.

37) The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection.

   a. Daily production details as per the GST sales.
   b. Quantity of effluents generated, treated & reused, disposed to M/s PETL, Patancheru, Sangareddy District
   c. Daily Hazardous / solid waste generated and disposed to TSDF / AFR&I / Reprocessors.
   d. Log Books for pollution control systems.

38) Qualified technical man power shall be employed to operate the ETP.

39) The industry shall take all precautionary and safety measures during process operations.

40) The industry shall maintain good house keeping within the plant premises.

41) The industry shall comply with all the directions issued by the Board from time to time.

42) The industry shall not sell the used empty drums/ barrels / liners / bags / Bottle etc. to outside parties & vendors for reuse, instead they shall discard the same to avoid reuse, which is resorting in illegal dumping of Hazardous Waste and shall dispose the same directly to authorized recyclers only.

43) The industry shall ensure for proper labelling of Hazardous Waste / other waste containers with particulars of industry & type of Waste along with characteristics, while storage & transporting the waste to Recyclers / TSDF / Cement Industries.

SCHEDULE - C
[see rule 6(2)]
[SPECIAL CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The industry shall give top priority for waste minimization and cleaner production practices.
2. The industry shall not store hazardous waste for more than 90 days as per the Hazardous and other Wastes (Management & Transboundary Movement) Rules, 2016 and amendments thereof. The industry shall maintain online manifest system for transportation of waste generated and copies of receipt of Consignee shall be submitted to the Concerned Regional office. The industry shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e. quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 20(2) of the Hazardous and other Wastes (Management & Transboundary Movement) Rules, 2016 and amendments thereof.
3. The industry shall dispose /sell the Hazardous Waste to only industries/agencies authorized by the State Pollution Control Boards. The industry shall verify the authorization of the Board given to the Party before disposing its waste to the External Party.

4. The industry shall maintain proper records for Hazardous Wastes disposal and its concurrence with authorization. In case of variation in generation, industry shall submit explanation and obtain amendment in Environmental Clearance/ CFE/CFO in this regard.

5. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal. Waste oils shall be disposed to the authorized Reprocessors/ Recyclers and Used Lead Acid Batteries shall be disposed to the manufacturers / dealers on buyback basis. The industry shall take necessary practical steps for prevention of oil spillages and carryover of oil from the premises. The industry shall check the Certificate/ Authorisation/order of MoEF issued to the Re-user/Recycle units while disposing the waste oil.

6. The industry shall dispose of e-waste to the authorised recyclers only.

The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this Order on half yearly basis to Board Office, Hyderabad / Zonal Office RC Puram and concerned Regional Office.

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JOINT CHIEF ENVIRONMENTAL ENGINEER (FAC)

To

M/s. Sigachi Industries Ltd, (After Expansion),
(Formerly M/s. Sigachi Industries Pvt. Ltd),
Plot No. 20 & 21, Phase – I, IDA,
Pashamailaram, Patancheru (M),
Sangareddy District.

TELANGANA STATE POLLUTION CONTROL BOARD
Zonal Office, 25-35/11, Tulasi Reddy Complex, 2nd Floor,
Opp. Govt. ITI College, R.C.Puram, Sangareddy District - 502 032.
Phone: 08455 280477, website: tspcb.cgg.gov.in

AMENDMENT of CFE EXPANSION ORDER

Order No: PASHA/271/PCB/ZO/RCP/2022-59 **Date: 19.03.2022.**

Sub: TSPCB, ZO, R.C. Puram – M/s. Sigachi Industries Ltd (Formerly M/s. Sigachi Industries Pvt. Ltd), Plot No. 20 & 21, Phase – I, IDA, Pashamailaram (V), Patancheru (M), Sangareddy District – Amendment– Issued - Reg.

Ref:
1. CFE for Expansion Order No. PASHA/271/PCB/ZO/RCP/CFE/2021-968, Dt 01.10.2021.
2. Industry's request letter dated 04.10.2021 at TSPCB, RO, Sangareddy.
3. The EE, RO, Sangareddy report dated 11.02.2022.
4. CFE Committee meeting held on 22.02.2022 at TSPCB, Zonal Office, R.C Puram.

*****

The Board vide reference 1st cited above has issued CFE for Expansion Order to M/s. Sigachi Industries Ltd (Formerly M/s. Sigachi Industries Pvt. Ltd), Plot No. 20 & 21, Phase – I, IDA, Pashamailaram (V), Patancheru (M), Sangareddy District to manufacture certain products and permitted to generate emissions as follows :

Products:

S. No.	Product	Existing Quantity	Total Quantity after Expansion
1.	Micro Crystalline Cellulose (by Hydrolysis)	5,200 Kgs/day	5,200 Kgs/day
2.	Cellulose Powder (Powdered Cellulose)	10,000 Kgs/day	20,000 Kgs/Day

Emissions:

S. No	Details of Stack	Stack 1 (Existing)	Stack 2 (Proposed)	Stack 3 (Proposed)	Stack 4 (Proposed)
a)	Attached to	Horizontally mounted fire tube boiler	Hot Air Generator	Coal fired boiler	DG sets
b)	Capacity	3 TPH	30 Lakh K. Cal / Hr.	2 TPH (Standby)	500 KVA
c)	Fuel	Coal	Coal	Coal	HSD
d)	Stack Height	30 mtrs	30 mtrs	30 mtrs	As per CPCB norms
e)	Details of Air Pollution Control Equipment	Multi Cyclone Dust Collector	Twin cyclone, Bag filter followed by wet scrubber	Dust Collector	Silencer
f)	Standards to be	SPM – 115	SPM – 115	SPM – 115	SPM – 115

The industry vide reference 2nd cited has requested the Board for amendment of the CFE order for the following:

1. To include the final product quantity Micro Crystalline Cellulose (MCC)/ Cellulose Powder/ Powdered Cellulose – 25200 kgs/Day as the industry is making final product by blending MCC (by hydrolysis) and MCC Powder Cellulose/Cellulose Powder (by mechanical disintegration).
2. To incorporate the existing 380 KVA DG set, which was missing in the expansion CFE order.

Vide reference 3rd cited, the EE, RO, Sangareddy has submitted the report on the industry's request for issue of amendment of CFE.

Vide reference 4th cited, the industry's request and the EE, RO, Sangareddy report was placed before the CFE committee meeting held on 22.02.2022. The representative of the industry have attended the meeting and submitted the justification and requested the committee to consider the amendment. After detailed discussions, the committee recommended to approve the request of the industry.

Accordingly, the following Amendment is made to the order issued vide reference 1st cited and shall be read as follows:

Products:

S. No.	Product	Total Quantity after Expansion
1.	*Micro Crystalline Cellulose (MCC)/ Cellulose Powder/ Powdered Cellulose	25,200 Kgs/day

* The industry shall manufacture the above product by mixing both Cellulose (by Hydrolysis) – 5,200 Kgs/day and Cellulose Powder (Powdered Cellulose) - 20,000 Kgs/day.

Emissions from chimenys:

S. No	Details of Stack	Stack 1 (Existing)	Stack 2 (Proposed)	Stack 3 (Proposed)	Stack 4 (Proposed)	Stack 4 (Proposed)
a)	Attached to	Horizontally mounted fire tube boiler	Hot Air Generator	Coal fired boiler	DG sets	DG sets
b)	Capacity	3 TPH	30 Lakh K. Cal / Hr.	2 TPH (Standby)	500 KVA	380 KVA
c)	Fuel	Coal	Coal	Coal	HSD	HSD
d)	Stack Height	30 mtrs	30 mtrs	30 mtrs	As per CPCB norms	As per CPCB norms
e)	Details of Air Pollution Control Equipment	Multi Cyclone Dust Collector	Twin cyclone, Bag filter followed by wet scrubber	Dust Collector	Silencer	Silencer
f)	Standards to be complied with	SPM – 115 mg/Nm^3	SPM – 115 mg/Nm^3	SPM – 115 mg/Nm^3	SPM – 115 mg/Nm^3	SPM – 115 mg/Nm^3

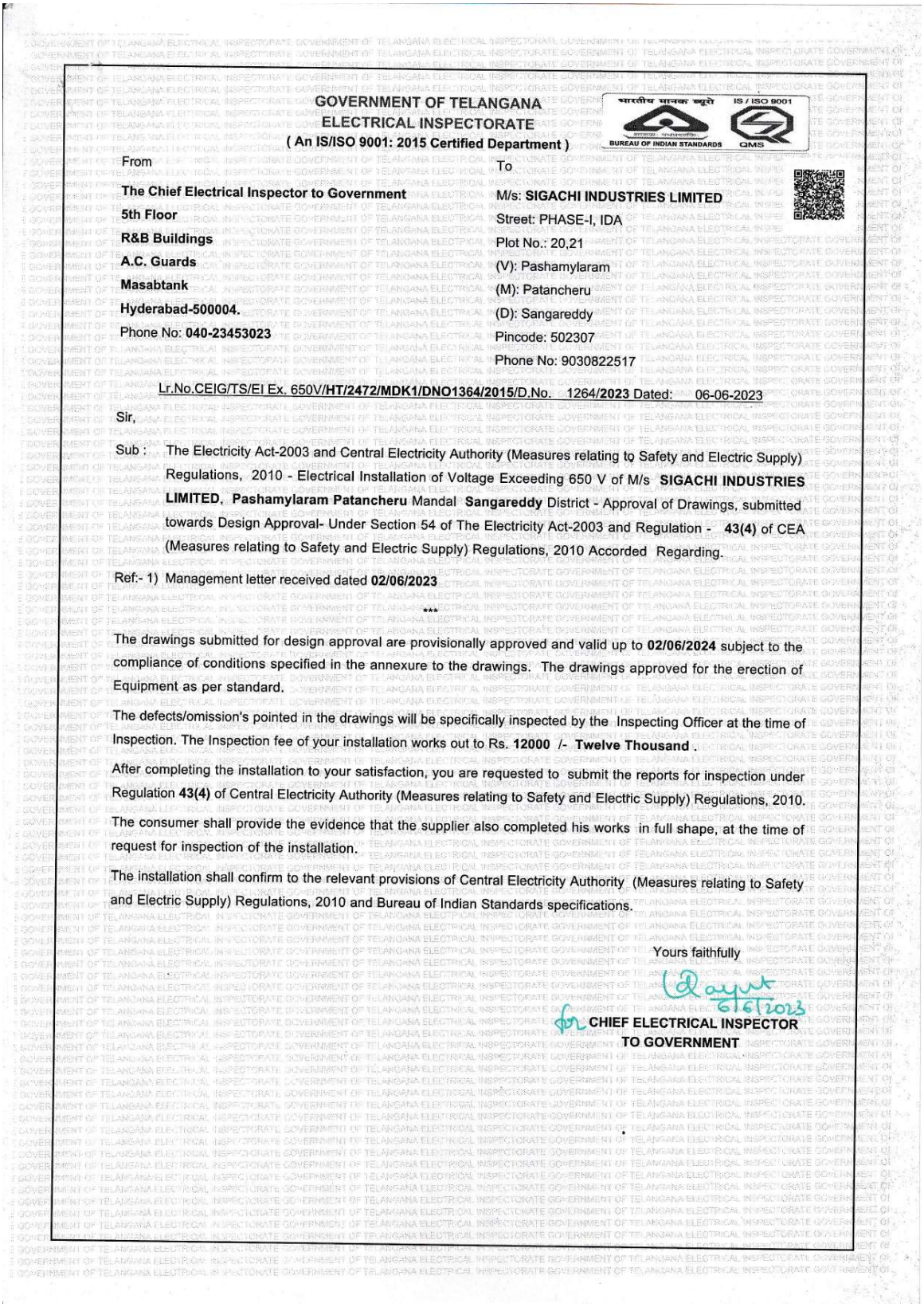
All other conditions stipulated in the Order issued vide reference 1st cited remains the same.

19/3/2022

JOINT CHIEF ENVIRONMENTAL ENGINEER

To
M/s. Sigachi Industries Ltd,
(Formerly M/s. Sigachi Industries Pvt. Ltd),
Plot No. 20 & 21, Phase – I, IDA,
Pashamailaram (V), Patancheru (M)

Annexure 4:



GOVERNMENT OF TELANGANA
ELECTRICAL INSPECTORATE
(An IS/ISO 9001: 2015 Certified Department)

भारतीय मानक ब्यूरो IS / ISO 9001
BUREAU OF INDIAN STANDARDS QMS

From

The Chief Electrical Inspector to Government
5th Floor
R&B Buildings
A.C. Guards
Masabtank
Hyderabad-500004.
Phone No: **040-23453023**

To

M/s: **SIGACHI INDUSTRIES LIMITED**
Street: PHASE-I, IDA
Plot No.: 20,21
(V): Pashamylaram
(M): Patancheru
(D): Sangareddy
Pincode: 502307
Phone No: 9030822517

Lr.No.CEIG/TS/EI Ex. 650V/**HT/2472/MDK1/DNO1364/2015**/D.No. 1264/**2023** Dated: 06-06-2023

Sir,

Sub : The Electricity Act-2003 and Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 - Electrical Installation of Voltage Exceeding 650 V of M/s **SIGACHI INDUSTRIES LIMITED**, **Pashamylaram Patancheru** Mandal **Sangareddy** District - Approval of Drawings, submitted towards Design Approval- Under Section 54 of The Electricity Act-2003 and Regulation - **43(4)** of CEA (Measures relating to Safety and Electric Supply) Regulations, 2010 Accorded Regarding.

Ref:- 1) Management letter received dated **02/06/2023**

***

The drawings submitted for design approval are provisionally approved and valid up to **02/06/2024** subject to the compliance of conditions specified in the annexure to the drawings. The drawings approved for the erection of Equipment as per standard.

The defects/omission's pointed in the drawings will be specifically inspected by the Inspecting Officer at the time of Inspection. The Inspection fee of your installation works out to Rs. **12000** /- **Twelve Thousand** .

After completing the installation to your satisfaction, you are requested to submit the reports for inspection under Regulation **43(4)** of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010.

The consumer shall provide the evidence that the supplier also completed his works in full shape, at the time of request for inspection of the installation.

The installation shall confirm to the relevant provisions of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 and Bureau of Indian Standards specifications.

Yours faithfully

6/6/2023

for **CHIEF ELECTRICAL INSPECTOR TO GOVERNMENT**

Annexure to Lr.No.CEIG/TS/ E.I Ex. 650V/ /2023 Dt. 06- 06-2023

Provisionally approved subject to the compliance of the following conditions.

I. TRANSFORMERS:

1. (a) Transformer Body shall be double earthed with 100 x 6 mm G.I. flats and they shall be connected to two separate and independent Earth Electrodes.

   (b) Transformer neutral shall be double earthed with 75 x 6 mm copper flats and they shall be connected to two separate and independent Earth Electrodes.

2. The Lightning Arrestors shall be independently earthed with 25 x 6 mm copper flats, and they shall be brought down on insulators.

3. Bus ducts shall be provided on the secondary side of the Transformer for the Transformers of capacity 750 KVA and above.

4. A safety working clearance of 2.6 Mtrs. shall be maintained between H.V. Equipment in 11 KV Sub-Station.

5. 100 mm C.I. pipes shall be used as earth electrodes for earthing of H.V. equipment in 11 KV Sub-station.

6. Maximum transformer rating for outdoor type oil immersed distribution transformer is 2500KVA, 11 kV as per IS1180(Part 1):2014 and BIS certification of transformers shall be submitted to this office.

II. MACHINERY SECTION:

1. All the motors based on rating shall be double earthed with following size of GI flats/wires and they shall be connected to the main earth bus.

Rating of Motor in HP	Size of GI Flat
Upto 5	10 SWG
6 to 15	8 SWG
16 to 50	6 SWG
51 to 100	25 X3 mm
101 to 150	40 x 6 mm
151 to 200	50 x 6 mm
201 and above	75 x 6mm

2. All the starters, switches, panels, PDBS, SDBS and LDBS shall be double earthed with suitablesize of GI flats/wires and they shall be connected to the main earth bus

P.T.O

III. GENERATORS:

1. (a) Two separate and independent earth connections shall be provided to the body of the Generator with 75 x 6 mm G.I. flats and they shall be connected to two separate and independent earth electrodes.

   (b) Two separate and independent earth connections shall be provided to the neutral of the Generator with 50 x 6 mm copper flats and they shall be connected to two separate and independent earth electrodes.

2. Bus duct shall be provided for the Generators having capacity of 750 KVA and above.

3. Energy meters, with a provision to seal the meters along with CTS shall be provided to the Generators.

IV. GENERAL:

1. Suitable provisions shall be made for immediate and automatic discharge of every static condenser on disconnection of supply.

2. All the plugs, sockets shall be of 3 pin type and the third pin shall be permanently and efficiently earthed.

3. Earth pits shall be constructed and shall be maintained as per IS:3043-1987.

4. The Electrical Installation work shall be got executed through only a licensed Electrical Contractor.

5. (a) The Licensed Electrical Contractor shall submit works commencement report to this office, immediately after commencing the Electrical installation work. This should indicate the names of the permit holders, supervisor, executing works.

   (b) The Licensed Electrical Contractor shall submit his Completion-cum-Test Report in the prescribed proforma after completion of the work taking reasonable time for completion of works.

6. The earth wires used for earthing of lighting circuits shall be properly connected by using suitable connectors.

7. The installation shall conform to the relevant provisions of Central Electricity Regulations, 2010.

8. Any instructions issued at the time of inspection should be complied with.

9. The person who executes the work shall be present at the time of inspection.

10. Approved drawings shall be displayed in the factory premises.

11. Fire protection for transformer shall be provided.

6/6/2023

for **CHIEF ELECTRICAL INSPECTOR**
TO GOVERNMENT

Annexure 5:

DRUGS CONTROL ADMINISTRATION
Government of Telangana

LICENCE RETENTION CERTIFICATE

Dated:23/10/2024

This is to certify that the Licence of the firm **M/s SIGACHI INDUSTRIES LIMITED** situated at **PLOT NO. 20-21, PHASE -1 IDA,PASHAMYLARAM(VILLAGE), PATANCHERU(MANDAL), SANGAREDDY (DIST.),TELANGANA STATE,INDIA** bearing Licence No. **190/MD/AP/95/B/CC** in the statutory **Form 25** granted/ renewed on **09/12/2024** whose validity would get expired by **08/12/2029** , is hereby permitted to be retained with the extended validity upto **08/12/2029** .with the existing Constitution ,Techinical Staff and Total Products as on date.

Retention fees/ with penalty for an amount of Rs. **13500.00** vide challan no:**6402593431** and Bank Transaction No.:**2030985384** has been paid on **23/10/2024** by the licensee in accordance with provisions of Rule 63(1) of the Drugs and Cosmetics Rules, 1945.

This is Electronically Generated Receipt Signature is not required

Annexure 6:

GOVERNMENT OF TELANGANA

FORM NO. 4

Prescribed under Rule 4 (4)

Licence to work a Factory

1. Registration / Licence Number	**42472**
2. Application Id	**FAM20230007641**
3. Full name of Factory	**Sigachi Industries Limited**
4. Full Address / Location of factory	**Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy -**
5. Full postal address for communications relating to the factory	**plot no 20, ida phase-1,pashamylaram,patancheru, sangareddy distirct TS-502307**
6. Maximum horse power installed regular / standby	**818**
7. Maximum number of workers to be employed	**200**
8. Full name and residential address of the Occupier and his position in the Company / Firm / Govt. factory or Local Fund factory	**AMIT RAJ SINHA Plot no 40, Ushodaya enclave, BHEL Hig Phase -2, madhinaguda, miyapur, MADEENAGUDA, Serilingampally, Rangareddy, Telangana - 500049 MANAGING DIRECTOR**
9. Director of Factories Remarks	**Licence limit of maximum number of workers employed in the factory is amended from 130 to 200**

Licence is hereby granted to the factory at 3 above for the premises stated at 4 above for use as a factory within the limits stated in 6, and 7 above subject to the provisions of the Factories Act, 1948 and the Rules made thereunder.

This licence shall be valid until it has been duly cancelled.

Date :
18/10/2023

Director of Factories

Signature Not Verified
Signed On 18-10-2023
By B RAMOO PALA RAO
IT ELANGANA STATE FACTORIES DEPARTMENT,
TELANGANA,
500038

Note:
1) This is a digitally signed certificate and does not require physical signature. This certificate can be verified at https://tsfactories.cgg.gov.in/ by furnishing the registration certificate number mentioned in the certificate.

Annexure 7:

SIGACHI®
An EXCIPACT GMP, ISO 9001:2015 & FSSC 22000 CERTIFIED COMPANY

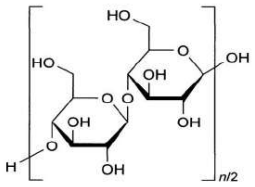
MATERIAL SAFETY DATA SHEET

Document No.: MSDS/MCC/001 **Revision date: 23/10/2024** **Revision No.: 02**

01	**IDENTIFICATION:**

Product identifier:

Product Name: **Microcrystalline Cellulose Powder**



Trade name:

HiCel™ **All Grades: (**50M,90M,LP200,HD50, HD90M, 25M,12M,14M, LM50, LM90, XLM50, XLM90, XLM200, LD50M etc.,)

All F-Grades: **(**F101,F102,F112,F200,F301,F302,F105,F12,F14,F103, F113, FLD1000, FSG1030,FSG 1032 etc.,)

AceCel®/ GloCel® **All Grades (**101,102,112,200,301,302,105,12,14,103, 113, LD1000, SG1030,SG 1032 etc.,)

CosmoCel™ **All Grades** (NS-10, NS-15, NS-30, NS-50, NS-200, NS-300, NS-400 etc.,)

Article Number: E460i

CAS (Chemical Abstract Services) Number: 9004-34-6

EC number: 232-674-9 Molecular Formula: $C_{6n}H_{10n+2}O_{5n+1}$

Details of the supplier of the safety data sheet:

Manufacturer/Supplier: **SIGACHI INDUSTRIES LIMITED.**

Unit	**UNIT 1: Hyderabad**	**UNIT 2: Dahej**	**UNIT 3: Jhagadia**
Address	Plot No. 20-21, Phase -1 IDA, Pashamylaram Village, Patancheru Mandal, Sangareddy District - 502307, Telangana State, India e-mail: qa.hyd@sigachi.com	Plot No. Z-16, Dahej SEZ Part I, Dahej, Tal.- Vagra, Dist. Bharuch – 392130 Gujarat state, India e-mail: qa.dahej@sigachi.com	Plot No. 763/2, GIDC Jhagadia, Dist. Bharuch - 393110 Gujarat state, India e-mail: qa.jhg@sigachi.com
Emergency telephone number	+9140 40114874 / 75	+91 6357065298	+91 02645-226230

Information department: Product safety department

02	**HAZARD(Z) IDENTIFICATION:**

Classification of the substance or mixture
Regulation (EC) No 1272/2008:

	This substance is classified as not hazardous according to regulation (EC) 1272/2008. The product is not classified as hazardous according to the Globally Harmonized System (GHS). Classification according to Directive 1272/2008/EC: This substance is classified as not hazardous according to regulation (EC) 1272/2008. **Label elements:** This substance is classified as not hazardous according to regulation (EC) 1272/2008: Label elements: Not applicable. GHS label element: Not applicable. Hazard Pictogram: None required. Signal word: Not applicable. **Other Hazard statements:** May form combustible /explosible dust concentrations if dispersed in air. Information concerning particular hazards for human and environment: Not applicable. **Hazard statements:** May cause respiratory irritation if dusting inhaled. Precautionary statements: Read label before use. Avoid breathing dust. **If Inhaled:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/physician if you feel unwell. **GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):** Combustible dust Precautionary statements: None **Emergency Overview**: Warning! Powdered material may form explosive dust-air mixtures. Combustible solid. **Potential Health Effect:** No adverse health effects expected. **Substance meets the criteria for vPvB and PBT according to Regulation (EC) No. 1907/2006, Annex III.** According to NFPA 68, (Explosion Venting Guide), the Hazard Class of Dust Deflagrations for Microcrystalline cellulose is St-1, the
	Classification according to Directive 67/548/EEC or Directive 1999/45/EC: Not listed as hazardous
03	**COMPOSITION / INFORMATION ON INGREDIENTS**
	Chemical characterization : White to almost white, fine or granular, free flowing non fibrous particles /powder. Compositions : Pure Substance (Single substance) Synonyms : Cotton linters, Cellulose powder Therapeutic Category : Drug excipient (Tablet and Capsule diluents), Food additive. Mixtures : Not applicable
04	**FIRST AID MEASURES**
	Description of first aid measures General information : No special measures required. After inhalation : Supply fresh air; consult doctor in case discomfort occurs and persists. After skin contact : Wash with plenty of water. Use soap solution if required. After eye contact : Rinse opened eye for several minutes under running water. Consult doctor if irritation occurs and persists. After swallowing : Have a person sip a glass of water. If any discomfort persists consult doctor. General Advice : When in doubt or if symptoms are observed, get medical advice. **Information for doctor:** **Most important symptoms and effects, both acute and delayed.** No further relevant information available. **Indication of any immediate medical attention and special treatment needed**

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	No further relevant information available.
05	**FIRE FIGHTING MEASURES**
	Suitable extinguishing agents: CO_2, any media suitable for extinguishing or water spray. **Special hazards arising from the substance or mixture:** No further relevant information available. **Advice for firefighters:** Use protective equipment against the hazard of heat. Do not breathe smoke/gas generated.
06	**ACCIDENTAL RELEASE MEASURES**
	Personal precautions, protective equipment and emergency procedures: Evacuate personnel to safe area. Provide adequate ventilation. **Environmental precautions:** Reduce airborne dust and prevent scattering by moistening with water. **Methods and material for containment and cleaning up:** Pick up mechanically. Sweep up the spilled material. Wash spilled area with soap and water. **Reference to other sections:** See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.
07	**HANDLING AND STORAGE**
	Handling: Precautions for safe handling**:** To be handled as per labeled instruction Information about protection against explosions and fires**:** No special measures required. **Conditions for safe storage, including any incompatibilities** Storage**:** Store protected from light and moisture Requirements to be met by storerooms and receptacles**:** Keep unexposed Information about storage in one common storage facility**:** No special measures required. Further information about storage conditions**:** Store protected from light and moisture Specific end use(s) **:** As food additive, pharma excipient
08	**EXPOSURE CONTROLS / PERSONAL PROTECTION**
	Additional information about design of technical systems: No further data; See item 7. **Control parameters**

Components with limit values that require monitoring at the workplace:	
PEL	Long-term value: 15* 5** mg/m³ , *total dust **Respirable fraction
REL	Long-term value: 10* 5** mg/m³ , *total dust **Respirable fraction
TLV	Long-term value: 10 mg/m³

Exposure controls: Prevent from dusting.
Personal protective equipment: Nose mask, safety glasses, Gloves
General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
Breathing equipment: Nose mask to prevent inhale of dusting.
Protection of hands: Gloves should be used. Replace the gloves considering the penetration times, rates of diffusion and the degradation
Material of gloves: The glove material has to be impermeable and resistant to the substance.
Penetration time of glove material: The exact break through time has to be decided by the user of the protective gloves and has to be observed.
Eye protection: Use safety glasses while handling.

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09	**PHYSICAL AND CHEMICAL PROPERTIES**
	Information on basic physical and chemical properties **General Information** • **Appearance:** • **Form:** Powder • **Color:** White to off white • **Odor:** Odorless • **Odor threshold:** Not determined. • **pH-value at 20 °C (68 °F):** Between 5 and 7.5 (10% solids dispersion in water for E460 i Between 5 and 7.5 (12.5% solids dispersion in water for pharmacopoeia)
	Change in condition • **Melting point/Melting range** : Not available • **Boiling point/Boiling range** : Undetermined. • **Flash point** : Not applicable. • **Flammability (solid, gaseous)** : Product is not flammable. • **Ignition temperature** : 340 °C (644 °F) • **Decomposition temperature** : > 260°C • **Auto igniting** : Not determined. • **Danger of explosion** : Product does not present an explosion hazard. • **Explosion limits:** Lower: Not determined. Upper: Not determined. Vapor pressure: Not applicable. • **Density** : 0.25 – 0.5 g/ml • **Relative density** : Not determined. • **Vapour density** : Not applicable. • **Evaporation rate** : Not applicable. • **Solubility in / Miscibility with Water** :Soluble in ammonical copper tetramine solution / Insoluble. • **Partition coefficient (n-octanol/water):** Not determined. • **Viscosity** : Dynamic :Not applicable. Kinematic :Not applicable. • **Organic solvents** : 0.0 % • **Solids content** : 100.0 % • **Other information** : No further relevant information available.
10	**STABILITY AND REACTIVITY**
	Reactivity : No information known **Chemical stability:** Stable under recommended storage condition **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications. **Possibility of hazardous reactions:** No dangerous reactions known. **Conditions to avoid:** Avoid exposure to light and moisture **Incompatible materials:** Strong oxidizers, water **Hazardous decomposition products:** May emit toxic fumes under fire conditions.
11	**TOXICOLOGICAL INFORMATION**
	Information on toxicological effects **Acute toxicity:** No significant acute toxicological effects are expected. LD50 Oral: LD50 > 5000 mg/kg (Rat)

	LD50 Dermal: LD50 > 2000 mg/kg (Rabbit) LC50 Inhalation: LC50 > 5800 mg/m3 (Rat) 4 h **Primary irritant effect:** • On the skin**:** No irritant effect. • On the eye**:** No irritating effect. • Sensitization**:** No sensitizing effects known. **Additional toxicological information:** Microcrystalline cellulose is negative in the Ames mutagenicity assay and caused no chromosome damage in the mouse micronucleus assay. Microcrystalline cellulose is considered an inert dust, which is not toxic to the lung when exposures are properly controlled. No adverse effect if administered as diet. No adverse human effects are known. **Carcinogenic categories** • IARC (International Agency for Research on Cancer)**:** Substance is not listed. • NTP (National Toxicology Program) **:** Substance is not listed.
12	**ECOLOGICAL INFORMATION**
	• **Toxicity** **Aquatic toxicity** **:** No further relevant information available. **Persistence and degradability:** No further relevant information available. • **Behavior in environmental systems:** **Bioaccumulative potential** **:** No further relevant information available. • **Mobility in soil** **:** Easily biodegradable • **Additional ecological information:** **Results of PBT and vPvB assessment** **PBT**(Persistent, bioaccumulative and toxic) **:** Not applicable. **vPvB**(Very persistent and Very bioaccumulative)**:** Not applicable. **Other adverse effects** **:** No further relevant information available.
13	**DISPOSAL CONSIDERATION**
	Microcrystalline Cellulose (MCC) is a non-hazardous material derived from plant wood pulp, which is mainly used in pharmaceuticals and food industry. While MCC itself does not require specialized disposal methods, users must adhere to all applicable local, state and federal laws and regulations regarding its waste management. For commercial users or large volumes, consider consulting with a certified waste management service provider for guidance on environmentally sound practices. We recommend following disposal practices to minimize environmental impact and support sustainable waste management. **Recycling Options:** The following steps are recommended for managing MCC waste at its end-of-life: i. **Product Return and Recycling Programs:** Sigachi encourages reclaim or return of unused or surplus MCC which is expired to authorized collection points as part of our Extended Producer Responsibility (EPR) initiative. We reprocess the recovered material for other industrial applications such as fertilizer additive or soil stabilizers since it is of plant origin and biodegradable. This reduces the environmental impact. ii. **Recycling Facilities:** MCC can be processed at local recycling centres that accept non-hazardous materials, where it may be converted into new products or used for environmentally friendly applications. iii. **Waste-to-Energy Conversion:** For large-scale users, MCC can be directed to certified waste-to-energy facilities that comply with environmental standards, thus reducing waste to landfills or as additives to briquets making for fuel. **Un-cleaned packaging:** Disposal must be made according to applicable laws and regulations of the land.

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	Our primary packaging comprises of LDPE liner or HDPE woven bags. The following steps are recommended for managing uncleaned MCC packaging at its end-of-life: i. **Recommended Action:** Dispose of uncleaned used packaging in compliance to all applicable local laws for waste management. Our packaging materials are designed to be recyclable or reusable. Check with your local recycling facilities to ensure proper processing. ii. **Cleansing Instructions:** If recycling is an option, thoroughly rinse containers with water, if necessary, use mild detergent water, to remove any residual MCC before recycling. The rinse material can be recycled in the ETP or disposed in accordance with the applicable local laws for disposal. **Additional Support and Information:** For more information on our product return and recycling programs, or to locate a nearby collection centre, please contact our support team at **Email**: enquiry@sigachi.com
14	**TRANSPORT INFORMATION**
	UN-Number: DOT, ADR, ADN, IMDG, IATA: Not regulated **UN proper shipping name: DOT, ADR, ADN, IMDG, IATA:** Not regulated **Transport hazard class(es): DOT, ADR, ADN, IMDG, IATA Class :** Not regulated **Packing group: DOT, ADR, IMDG, IATA:** Not regulated **Environmental hazards: Marine pollutant:** No **Special precautions for user:** Not applicable. **Transport in bulk according to Annex II ofMARPOL73/78 and the IBC Code:** Not applicable. **UN "Model Regulation": ---**
15	**REGULATORY INFORMATION**
	Safety, health and environmental regulations/legislation specific for the substance or mixture **SARA** (Safety analysis risk assessment) Section 355 (extremely hazardous substances)**:** Substance is not listed. Section 313 (Specific toxic chemical listings)**:** Substance is not listed. **E numbers:** E460 **Proposition 65** • Chemicals known to cause cancer**:** Substance is not listed. • Chemicals known to cause reproductive toxicity for females**:** Substance is not listed. • Chemicals known to cause reproductive toxicity for males**:** Substance is not listed. • Chemicals known to cause developmental toxicity**:** Substance is not listed. **Carcinogenic categories** • EPA (Environmental Protection Agency)**:** Substance is not listed. • TLV (Threshold Limit Value established by ACGIH)**:** Substance is not listed. • NIOSH-Ca (National Institute for Occupational Safety and Health)**:** Substance is not listed. • OSHA-Ca (Occupational Safety & Health Administration)**:** Substance is not listed. • Substances of very high concern (SVHC) according to the REACH regulations EC 1907/2006 for the manufacturing, placing on the market and use must be observed. **:** Substance is not listed. **GHS label elements:** Refer to item 02. **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.
16	**OTHER INFORMATION**
	This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. **Department issuing SDS:** Product safety department

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	Date of creation: 27/07/2012 **Abbreviations and acronyms:** ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road ACGIH: American Conference of Governmental Industrial Hygienists

For Sigachi Industries Limited,

11/06/2025

MD Rafiq Patel
AGM-QA

SIGACHI INDUSTRIES LIMITED * PASHAMYLARAM *

END OF THE DOCUMENT

Annexure 8(a):

CHECKLIST FOR INSPECTION OF FACTORIES IN TELANGANA STATE		
General Information		
Sl.No	Description	Status
1	Date of Inspection	11/12/2019
2	Registration Number	42472
3	Name of the Factory	Sigachi Industries Pvt.Ltd
	Is there any change in Name of the Factory?	No
4	Address of factory	Plot No. 20, IDA Phase - I, Pashamylaram (V), Patancheru (M), Sangareddy District
	Working Factory (or) Not Working Factory?	Working Factory
5	Maximum number of workers to be employed (Licence Limit) Total number of workers employed a) Regular workers - Male b) Regular workers - Female c) Contract workers - Male d) Contract workers - Female	100 121 a) 93 b) 5 c) 20 d) 3
	Is there any change in workers Licence Limit?	No
6	a) Maximum Horse Power to be Installed in hp (Licence Limit) b) Actual Power Installed in hp c) Stand by Power in KVA / KW	a) 819 b) 366 c) 380 KVA
	Is there any change in Installed hp / Stand by power?	Yes The licence granted is for the limit not exceeding 366 HP which has been exceeded by installing 819 HP as found at the time of inspection and no application has been made for amendment of licence so far. Get the Licence limit of maximum amount of HP installed in the factory premises amended through online Portal of tsfactories.cgg.gov.in immediately.(DLF& AF paid subsequently)
7	Manufacturing Process	Micro crystallization cellulose and cellulose powder
8	Licence Renewed up to	31/12/2019
	Licence fee paid	Yes
	Annual Return Submitted	No
9	Whether plans of the factory are approved?	No Section 6 Rule 3A(6) rwr section 112 & rule 102 A rwr 102: Copy of the detailed plans approved plans were not produced for verification during the visit, Immediately Submit the same to the office of the Deputy Chief Inspector of Factories, SangaReddy for verification.
10	Occupier Details	Name : Sri S Chidambaranathan Mobile No. : 9391249755 e-mail : sen@sigachi.com Father Name : Late Shanmukhanatha Pillai Age : 76
	Is there any change in Occupier?	No
11	Factory Manager Details	Name : Sri Prakash V Mobile No. : 9391249755 e-mail : prakash.shenvi@sigachi.com Father Name : Sri Vitoba Shenvi Age : 46
	Is there any change in Manager?	No

12	Responsible Person Details	Name : Sri S Chidambaranathan Mobile No. : 9391249755 e-mail : sen@sigachi.com Father Name : Late Shanmukhanatha Pillai Age : 76
13	Is there any child labour employment?	No
14	Is there any adolescent worker employment without certificate of fitness?	No
Safety Provisions		
Sl.No	**Check Points related to Safety Provisions**	**Status**
1	Whether Safety guards or fencing is provided to the moving parts of the machinery	No Section 21(1)(iv) (b): 1.Provide Secure and substantial weld mesh box guards to enclose completely the following (i) Pulleys and belts drives of the (a) ID fan of the Boiler ID fan of the Boiler (b) Coal crusher (c) v belt of the pulveriser (d) Stirrer of the Preparation tnak. 2.Provide Secure and substantial cover guards to cover the coupling of the (i) Thermic fluid heater pumps 3.Provide Secure and substantial cover guards to cover the exposed portion of the shaft of the(i) ID fan of the Boiler
2	Whether hoist and lifts examined by competent person?	NA
3	Whether lifting machines, chains, ropes and lifting tackles examined by competent person?	No Section 29 Rule 55 RW Section 112 RW Rule 102A RW Rule 102: Submit the with in a week copies of the results recorded (i.e.Form No.38) in regard to the examination of the Lifting machine(s)(other than hoist and lift)/chain(s)/ rope(s)/ lifting tackle(s) done once in a once in a year done by a competent person.
4	Whether pressure vessels examined by competent person?	No Section 31 and Rule 56 RW Section 112 RW Rule 102A RW Rule 102: Submit with in a week the copies of the results recorded (i.e.Form No.8) in regard to the examination of the pressure vessels installed in the factory premises.

5	Floors, stairs with handrails, safe means of access, and platforms with toeboards provided and maintained properly	No Sec 32: 1.Provide substantial Hand railing of at least 1.2 metres height to the FLOORS /PLATFORMS of the (i) Furnace platform (ii) Coal crusher (iii) Thermic fluid heater(iv) GLM bottom area platform (v) spray drier floor exhaust (vi) Cooling tower AHU floor 1(a).Provide substantial mid rail to the Hand railing provided to the FLOORS /PLATFORMS of the (i)Stage V Blender equipment 2.Provide substantial Hand railing of at least 1.2 metres height to the steps /ladder provided to the(i) Coal crusher (ii) Thermic fluid heater(iii) GLM bottom area platform 2(a)Provide substantial mid rail to the Hand railing provided to the steps /ladder provided to the(i) 1st floor of the main shed 3.Provide substantial Hand railing of at least 1.2 metres height on the second side to the steps /ladder provided to the(i) boiler section 4.Provide suitable D-Ring or spiral back rings to the vertical ladder provided to the(i) Aerobic reactor (ii)Un-aerobic reactor (iii) Slurry feed tank 5.Provide Substantial toe boards of at least 15 cms height to the FLOORS /PLATFORMS of the (i) Furnace platform (ii) Coal crusher (iii) Boiler coal feed elevator (iv) GLM bottom area platform (v) Stage V Blender equipment (vi) Office building (vii) spray drier floor exhaust 6.Provide Substantial toe boards of at least 15 cms height to the (1) landing places of the steps/stair cases at (i) Boiler Chimney- 2nos. (ii) 1st floor of the main shed 7.Provide Substantial toe boards of at least 15 cms height to the (a) walk ways provided to the (i) coal belt conveyors 8.Do not store the materials in the path marked for the movement of the men and materials hindering /obstructing the free movement of the men and materials. 9. The pipe lines and cables laid on the floors hindering the free and safe movement of the men and material ,shall be laid in underground trenches. 10. Provide iron grill grating /sheets to cover the gaps between the floors/platforms and the machinery/equipments/pipelines. 11.Remove the scrape and used material and old obsolete machinery /equipment from the floors of the working areas, shift them to the scrape yards.
6	Are all the pits, sumps, openings in floors are securely covered or fenced?	No Section33: Provide secure and substantial hand rails to the following (i) Cooling Tower Solar pit in ETP
7	Whether Eye sight and colour vision of the persons employed to operate or to give signals to a crane / locomotive / fork lift truck examined by a qualified ophthalmologist?	NA
8	Are sufficient number of exits from every machinery hall provided?	No Section 38 Rule 61: (i)Ensure the fire exits from all the rooms and places of working without any obstruction. (ii)Exits shall be marked clearly visible and with suitable illumination and also paint on the floors the direction /escape routes to guide the workers to escape in case of emergency.
9	Whether adequate fire fighting equipment provided and workers are trained in fire fighting?	Yes

10	Whether thick rubber matting (or) insulating stand provided at electrical panels?	No Section 41 and Rule 61-B(24): Provide thick rubber matting (or) insulating stand permanently in position near electrical panel board at (i) Furnace section Furnace platform (ii) Slurry feed tank
11	Whether all electric wiring Laid in permanent conduits to prevent danger to work men?	No Section 41 and Rule 61(B)(19): Loose and temporary electric wiring is found in the Factory. Lay all such electric wiring in permanent conduits to prevent danger to work men.
12	Three way plug pin used for supply to portable electrical apparatus	Yes
13	Earth Leakage Circuit Breaker (ELCB) provided in the main circuit, to protect the persons working on electrical equipment from excess of leakage current	Yes
14	Proper earthing to the portable electric apparatus Provided	Yes
15	Whether Qualified Safety officers appointed?	NA
16	Whether a Safety committee is constituted?	No Section 41(G) AND Rule 61(SG)A: Intimate in writing to the under signed in advance regarding the conduct of safety committee meetings. Send copies of minutes of the safety committee meetings along with compliance reports to the Deputy Chief Inspector of Factories ,Sangareddy regularly.
17	As per Indian Standard, Personal Protective Equipment like safety belts, helmets, safety shoes, goggles, mask and gloves are available in sufficient quantity for workers employed therein	No Section 41 Rule 61 E: Ensure to wear and use the following personal protective equipment by the workers : 1) Suitable heat resistant hand aprons face shield , goggles ,caps to the workers employed at the boiler section and the workers handling the hot materials. 2) Suitable acid resistant hand aprons face shield , goggles ,caps to the workers employed at the Chemical Lab and the workers handling the corrosive materials. 3)Suitable canister mask with self breathing apparatus to use in case of emergencies.
18	Health and Safety Policy prepared and displayed	No Section 41-B(2) Rule 61(SB)A: (All Hazardous Factories > 100 workers) Lay down a detailed policy with respect to the health and safety of the workers and submit a copy of the same. Section 7-A(3): (All Non Hazardous Factories > 300 workers) Lay down a detailed policy with respect to the health and safety of the workers and submit a copy of the same.
19	Whether persons who possess qualifications and experience to supervise handling of hazardous substances appointed?	Yes
20	Whether Work permits for critical / jobs are followed and record maintained	No Section 7-A(2) read with Sec.41 and Rule 61-F(3): Implement permit to work systems for the following works.Submit the copies of the same to this office. (i) Working at heights / fragile roofs, (ii) Mechanical maintenance works, (iii) Excavation works, (iv) Work in confined spaces, (v) Electrical works (vi) Hot work

21	Safety training given to all workers	No Section 7-A(2): Provide adequate pre- employment and periodical Safety training (with external and Internal expertise safety professionals / faculty members) to all workers including the contract and causal workers.
22	Whether any walls / structures damaged in the factory?	No Section 40 (1): Carryout necessary repairs to the damaged walls/structures and submit a structural stability certificate from a qualified structural engineer.
Health Provisions		
Sl.No	**Check Points related to Health Provisions**	**Status**
1	Cleanliness status of workplace such as floors, stairs and passages are cleanliness	No Section 11: 1.The inside walls of the machinery hall accumulated with dirt. Lime wash the all walls of the machinery hall immediately and it should be continued at interval not exceeding 14 months. 2.The machinery halls and surroundings of the Factory should be kept always clean and sanitary.
2	Effective arrangements are provided for the treatment of waste and effluents	Yes
3	Effective arrangements are provided for control of excess dust and fumes	NA
4	Drinking water facilities available in factory	Yes
5	Latrines and urinals are provided in proportion to the no. of male and female workers employed	Yes
6	Latrines and urinals are maintained in a clean and sanitary condition	No Section 19 Rule 40-43: Latrines and urinals shall be maintained in a clean and sanitary condition at all times.
7	Sufficient and suitable lighting (natural or artificial or both) shall be provided in every part of factories	Yes
8	Adequate ventilation by the circulation of fresh air provided	No Section 13 Rule 17-A: i.Provide sufficient number of turbo roof ventilators over (i) Gable roof sheds (a) Finished product Godown ii).Sufficient number of windows / ventilators shall be provided to the following machinery sheds and the rooms , such that the centre distance between two consecutive windows / ventilators shall not be more than 3metres: a) Finished product Godown
Welfare Amenities		
Sl.No	**Check Points related to Welfare Provisions**	**Status**
1	Adequate and suitable facilities for washing provided and maintained for the use of the workers	Yes
2	First aid facilities available in factory	No 1. Section 45 Rule 63C: Provide a first aid box, containing the equipment prescribed in the sub-rule 63Capplicable and keep it incharge of responsible person, trained in first aid treatment.

3.1	Whether Canteen provided?	NA
4.1	Whether Shelters, rest rooms provided	No Section 47 and Rule 72: Provide and maintain adequate and suitable shelter or rest room for the use of the workers.
4.2	Whether lunch rooms provided	Yes
5	Whether Creche provided?	NA
6	Whether Welfare officer appointed?	NA
7.1	Whether Ambulance Room provided?	NA
7.2	Whether whole time medical officer assisted by atleast one qualified nurse or dresser cum compounder appointed?	NA
7.3	Whether Ambulance Van provided?	NA

Other Provisions

Sl.No	Check Points related to Other Provisions	Status
1	Muster roll maintained	No SSection 112 Rule 103 read with Rule 102 A: Produce the muster roll registers (at least last 3 years)in respect of the all workers including contract and causal workers working in the factory.
2	Payment of wages Register maintained	No Payment of wages Act and Rules: Rule 5: Produce the (at least last 3 years) Record of Payment of wages to all the workers.
3	Overtime Register maintained	No Section 59 Rule 78 â C: (i) Issued over time slips to the workers duly signed by the manager furnishing the period of over time work immediately after the completion of over time work. (ii) Pay double the rate of normal wages for the over time work done by the workers and maintain record.
3.1	Overtime within prescribed limits i.e., less than or equal to 50 hours in a quarter?	Yes
4	Accident Register maintained	No Section 112 Rule 102-A: Produce the Record of Accidents that took place in the Factory.
5	Leave with wages Register maintained	No Section 83 Rule 87 read with Rule 102-A: Produce the (at least last 3 years) record of leave with wages allowed to each worker.
6	Maternity Benefit Act and Rules maintained	No Section 112 rwr Section 102 Rw section 102 A submit the copies of the(at least last 3 years)record of the women workers maintained under the Maternity benefit Act.
7	Common Annual Return submitted	No Section 110 Rule 100: Submit the Annual return for the year ending 2018 immediately as it was not submitted before the due date i.e., 31st jan 2019.

8	Building Stability Certificate received from competent Person for New Registration of Factories	NA
9	Whether weekly off given to Regular / contract workers	Yes
10	Information of accidents and dangerous occurrences as per section 88 and 88-A to the Inspectorate in Form 18 /18-A	NA
11	Whether a report in form No.19 sent to the Director of Factories in respect of any occupational diseases detected (as mentioned in third schedule of section 89)	NA

Fire Prevention and Control

Sl.No	Observations	Status
1	Whether fire hydrant systems are provided to all the hazardous areas which are prone to Fire?	No Section 38 and Rule 61: Failed to provide pressurized fire hydrant system with sufficient storage of water, fire pump and jockey pump inside the factory premises and ensure that 7 Kg/cm2 pressure is maintained in the fire hydrant line.
2	Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors for ventilations ducts, pneumatic conveyors and similar equipment Provided	No Section 38 Rule 61 read with Section 7A(2): Provide Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors.
3	Unobstructed access to fire fighting provided	No Section 38 and Rule 61(2)(a): Provide Unobstructed access for fire fighting with proper provision and maintenance of Roads.
4	Is protection from lightening provided a) For building in which explosive / flammable substances are manufactured, stored or handled b) Storage tanks containing flammable liquids c) Buildings, tall chimneys or sacks where flammable gases or vapours likely to present d) Substation buildings / transformers / switch yards	Yes

Occupational Health Centres

Sl.No	Observations	Status
1	Whether Occupational Health Centre provided?	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and âoccupational health centerâ having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.

2	Whether medical officer is appointed? Whether qualified and trained dresser cum compounder Whether a minimum of 5 persons are trained in First aid procedures	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and åoccupational health centerå having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.
3	Whether a fully equipped ambulance van provided?	No Section 41(C) and Rule 61(SC)(C): 1. Make arrangements for procuring an Ambulance van suitably constructed and equipped with emergency care equipments at short notice from a near by hospital or any other place. (for Hazardous factories employing <200 workers)
4	Pre employment and Periodical (once in six months) medical examination of all the workers engaged in hazardous process carried out	No Section 41(C) and Rule 61(SC)(A) Section 112 rw Section 102 Rw section 102 A : submit the register/records of the medical examination of all the workers including contract workers, conducted by the certifying surgeon once in a period of 6 months thereafter, to ascertain their health status.

Chemical Orders

Sl.No	Observations	Status
1.1	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure relief system / rupture disk	Yes
1.2	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure Gauges	Yes
1.3	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Emergency shut off system	Yes
1.4	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Dump Tank	Yes
1.5	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Bundwall	No Section 87 and Rule 95 Sch. XV Part III: Para-5: (i) Provide bund walls for the storage tanks of HCL.
2	Sensors with alarm system are provided for detection of leakage of chemicals	No Section 87 and Rule 95 Sch. XV Part II: Para 12: Provide Sensors with alarm system for detection of leakage of chemicals.
3	Safe Operating Procedures (SOP) for carrying all hazardous operations are prepared / displayed at all work areas	No Section 7-A(2) read with Section 41 and Rule 61-F(3): Prepare and display Safe operating procedures for carrying all Hazardous operations.
4	Has the management prepared on-site emergency plan as per the MSIHC Rules, 1989	No Section 41-B(4): 1.Submit the copies of the following to this office . (i) on-site emergency plan of the factory. (ii) chemical fact sheets. (iii) safety survey report. (iv) inventory of chemical.

5	Whether mock drills conducted as per on-site emergency plan	No Sec.41-B(4) of Factories Act and Rule 13(4) of M.S.I.H.C.Rules: Conduct the mock drill of on-site emergency plan once in every 6 months and all the scenarios contemplated in the on-site emergency plan shall be tried one after the other.
6	Technique adopted to assess the hazards (i) Risk Assessment report (ii) Hazop study report	No Section 7(A)(2)(c)(e) read with and Rule 102 of Factories Act 1948; and Rule 4(2) of manufacturing, storage and import of hazards chemicals rules 1989 under Environment protection Act 1986: Prepare a hazard analysis and risk assessment report in respect of _____Which is being manufactured in the factory. And submit a copy of such report to this office in triplicate.
7	Whether Safety audit report required as per MSIHC Rules, 1989 Submitted to the Director of Factories?	NA
8	Disclosure of information regarding hazards / dangers including health hazards from design stage to disposal and measures taken to overcome such hazards arising from the exposure to or handling of the material or substances in the manufacturing process, to the workers. To the chief inspector of factories and local authority before commencement of manufacturing process and also subsequently whenever there is change in the process as per the section 41-B /Section 87 and rule 95 and Sch-XV	No Section 41-B /Section 87 Rule 95 (part-II) Para 5: Submit information in writing giving details of the process, its hazards and the steps proposed to be taken from the design stage to disposal stage for ensuring the safety should be sent to Director of Factories, Telangana,Hyderabad.
9	Precautions against ignition a) Flame proof electrical fittings in areas of risk b) Effective measures for prevention of accumulation of static charge c) Workers shoes without iron or steel nails to cause friction d) Prohibition of smoking	NA

Special Standard Order

Sl.No	Observations	Status

1	other orders1	Section 7(A)-(2): 1.Ensure all the nuts and bolts of the reactor lids were fixed and tightened . 2.Conduct the Illumination survey and improve the lighting and submit to this office within 7 days , the compliance on the recommendations mentioned in the survey. 3.Mark / Paint the flow directions to the pipe lines AS PER ISO CODES , connected to the reactors. 4.Display the dos and donts boards at the conspicuous places in every section. 5.Replace the rusted water pipe lines of the cooling water. 6.Ensure to store the raw material and finished after checking their compatibility. 7..Store drums /carbouys in the shade on the acid proof floors. 8. At low height structures areas . Provide the caution boards and rubber padding to avoid injuries to the head of the workers. 9 . Provide substantial covers to the (i) glass water level indicators (a) Boilers 10.Provide Over head water shower with eye wash fountain at the (i) Corrosive chemicals storage area and display the caution boards. 11. Paint the walkways /path on the floors in the factory premises to demarcate for the movement of the men and materials. 12.Paint the specifications, date of testing ,due date of testing etc on the pressure vessels and lifting machinery. 13.Display speed limits and the directional boards to guide the vehicles allowed inside. 14.Ensure the drivers posses with the valid driving licence with them , when the transport vehicles are allowed inside the factory premises. 15. Check the vehicles drivers and all the workers to ensure that they had not consumed any alcohol. 16.A Ladder of 30 metres were provided to the chimney of the boiler (2nos), with only one landing place. For the safety Modified the ladder providing a landing places at height of every 12 feet and the ladder located staggered. 17. At some places in the factory premises ,there is no clear gap of at least 3 metres distance from the compound walls and the machinery /equipments/rooms etc. Provide at least 3 metres clear distance for free movement of the fire tenders in case of emergency. 18. Remove the abandon equipments/machinery and structures and improve the house keeping and create space for free and safe movement of the men and materials in the floors of the working places in the factory premises.

2	other orders2	Section 7(A)-(2): 19.Submit the copy of the CEIG, certificate /letter issued, in regard to the power installed load particulars of your factory. 20 . Ensure that the cylinders of the different gases procured and stored in the factory premises are fitted with the valves designed only as per the Indian Standard (IS) for the specified gas and ensure that the gas cylinders valves are non compatible and not fit to the adapters of any other gas cylinders. 21. Regularly Paint the rusted pipe lines and the rusted structures in the factory premises. Maintain them Properly . 22.Repair the masonry walls, shades over windows which were found damaged at the time of visit. Get them repaired. 23.Replace the damaged roof sheets/ cladding sheets to the sheds (i) Thermic fluid heater 24..Barricade around the old and abandon (i) Pilot plant godown (at the time of visit proposed for dismantled) 25.Maintain all the earth pits properly and provide water pipe lines with valve system to all the earth pits 33.Provide second stair case to use in case of emergency to (i) main shed connecting each floor 36. Provide sufficient number of turbo roof ventilators over (i) Gable roof sheds (a) Finished product Godown 37.Sufficient number of windows / ventilators shall be provided to the following machinery sheds and the rooms , such that the centre distance between two consecutive windows / ventilators shall not be more than 3metres: a) Finished product Godown 38 . Provide angular protection to the structures to prevent damage due to hitting of vehicles 39. Mark the equipment names on the back side of the electrical panel boards 40. Provide emergency lamps in all the rooms 41. Provide sufficient life lines above all the roofs of the sheds and above the loading and unloading areas 42.provide Dyke wall around the following tanks (i) HCL tank without any gap in the walls.
		Section 112 rwr Section 102 Rw section 102 A : Immediately comply the above mentioned items and without fail SUBMIT WITH IN A WEEK, THE COMPLIANCE REPORT along with a set of copies of the photos , documents as proof of compliance to THE OFFICE OF THE DEPUTY CHIEF INSPECTOR OF FACTORIES SANGAREDDY . Upload the soft copy of the same.

Signature of Inspecting Officer
(Maroju Praveen Kumar)
Deputy Chief Inspector of Factories, Sangareddy,
Telangana

Annexure 8(b):

CHECKLIST FOR INSPECTION OF FACTORIES IN TELANGANA STATE		
General Information		
Sl.No	**Description**	**Status**
1	Date of Inspection	08/10/2020
2	Registration Number	42472
3	Name of the Factory	Sigachi Industries Limited
	Is there any change in Name of the Factory?	No
4	Address of factory	Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy
	Working Factory (or) Not Working Factory?	Working Factory
5	Maximum number of workers to be employed (Licence Limit) Total number of workers employed a) Regular workers - Male b) Regular workers - Female c) Contract workers - Male d) Contract workers - Female	130 130 a) 126 b) 0 c) 4 d) 0
	Is there any change in workers Licence Limit?	No
6	a) Maximum Horse Power to be Installed in hp (Licence Limit) b) Actual Power Installed in hp c) Stand by Power in KVA / KW	a) 818 b) 818 c) 380 KVA
	Is there any change in Installed hp / Stand by power?	No
7	Manufacturing Process	Manufacturing of Micro crystalline cellulose powder, powdered cellulose
8	Licence Renewed up to	31/12/2020
	Licence fee paid	Yes
	Annual Return Submitted	No
9	Whether plans of the factory are approved?	Yes
9.1	Factory building plans approved detail	D.Dis A2/SR-I/1800/2014
9.2	Are there any Plan deviations?	No
9.3	Are there any additional constructions / machinery installations?	No
10	Occupier Details	Name : S. Chidambaranatham Mobile No. : 9391249755 e-mail : Father Name : Late Shanmughnathan Age :
	Is there any change in Occupier?	No
11	Factory Manager Details	Name : M E Elangovan Mobile No. : 9391279755 e-mail : Father Name : M R Elumalai Age :
	Is there any change in Manager?	Yes Section 7 Rule 12: Failed to send a notice in Form No. 2A to the Inspector of Factories though there is a change in manager to M E Elangovan.
12	Responsible Person Details	Name : M E Elangovan Mobile No. : e-mail : Father Name : Age :

13	Is there any child labour employment?	No
14	Is there any adolescent worker employment without certificate of fitness?	No
	Safety Provisions	
Sl.No	**Check Points related to Safety Provisions**	**Status**
1	Whether Safety guards or fencing is provided to the moving parts of the machinery	Yes
2	Whether hoist and lifts examined by competent person?	Yes
3	Whether lifting machines, chains, ropes and lifting tackles examined by competent person?	Yes
4	Whether pressure vessels examined by competent person?	Yes
5	Floors, stairs with handrails, safe means of access, and platforms with toeboards provided and maintained properly	Yes
6	Are all the pits, sumps, openings in floors are securely covered or fenced?	Yes
7	Whether Eye sight and colour vision of the persons employed to operate or to give signals to a crane / locomotive / fork lift truck examined by a qualified ophthalmologist?	Yes
8	Are sufficient number of exits from every machinery hall provided?	No Section 38 Rule 61: Provide fire exits from all the rooms and places of working without any obstruction. Exits shall be marked clearly visible and with suitable illumination.
9	Whether adequate fire fighting equipment provided and workers are trained in fire fighting?	No Section 38 Rule 61: Provide adequate and suitable fire fighting equipment. Sufficient number of persons shall be trained in handling fire fighting equipment.
10	Whether thick rubber matting (or) insulating stand provided at electrical panels?	Yes
11	Whether all electric wiring Laid in permanent conduits to prevent danger to work men?	Yes
12	Three way plug pin used for supply to portable electrical apparatus	Yes
13	Earth Leakage Circuit Breaker (ELCB) provided in the main circuit, to protect the persons working on electrical equipment from excess of leakage current	Yes
14	Proper earthing to the portable electric apparatus Provided	Yes
15	Whether Qualified Safety officers appointed?	No Section 40-B Rule 61-A: Appoint a qualified Safety officer in the factory in accordance with the provisions of Rule 61-A.
16	Whether a Safety committee is constituted?	Yes

17	As per Indian Standard, Personal Protective Equipment like safety belts, helmets, safety shoes, goggles, mask and gloves are available in sufficient quantity for workers employed therein	No Section 41 Rule 61 E: Provide the safety shoes and other appropriate personal protective equipment's to all the workers employed in the factory.
18	Health and Safety Policy prepared and displayed	Yes
19	Whether persons who possess qualifications and experience to supervise handling of hazardous substances appointed?	Yes
20	Whether Work permits for critical / jobs are followed and record maintained	Yes
21	Safety training given to all workers	No Section 7-A(2): Provide Safety training to all workers.
22	Whether any walls / structures damaged in the factory?	Yes

Fire Prevention and Control

Sl.No	Observations	Status
1	Whether fire hydrant systems are provided to all the hazardous areas which are prone to Fire?	No Section 38 and Rule 61: Failed to provide pressurized fire hydrant system with sufficient storage of water, fire pump and jockey pump inside the factory premises and ensure that 7 Kg/cm2 pressure is maintained in the fire hydrant line.
2	Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors for ventilations ducts, pneumatic conveyors and similar equipment Provided	No Section 38 Rule 61 read with Section 7A(2): Provide Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors.
3	Unobstructed access to fire fighting provided	No Section 38 and Rule 61(2)(a): Provide Unobstructed access for fire fighting with proper provision and maintenance of Roads.
4	Is protection from lightening provided a) For building in which explosive / flammable substances are manufactured, stored or handled b) Storage tanks containing flammable liquids c) Buildings, tall chimneys or sacks where flammable gases or vapours likely to present d) Substation buildings / transformers / switch yards	Yes

Welfare Amenities

Sl.No	Check Points related to Welfare Provisions	Status
1	Adequate and suitable facilities for washing provided and maintained for the use of the workers	Yes
2	First aid facilities available in factory	Yes
3.1	Whether Canteen provided?	Yes
3.2	Fly proof mesh to the doors and windows of canteen provided	Yes
3.3	Floor and inside walls of the canteen made smooth and impervious?	Yes

3.4	Hot water facility for cleaning of utensils provided	No Section 46 and Rule 67(2): Provide hot water facility for cleaning of utensils.
3.5	Fly proof safes for storing the food material provided	Yes
3.6	A canteen managing committee with equal number of persons nominated by occupier and elected by the workers constituted	Yes
3.7	The staff of the canteen engaged in handling food stuffs medically examined by the medical officer	No Section 46 and Rule 71: Get the staff of the canteen engaged in handling food stuffs medically examined by the medical officer by conducting the following tests once in a year. (i) Routine blood examination (ii) Routine and bacteriological testing of faces and urine for germs, dysentery and typhoid fever (iii) Any other examination including Chest X-Ray that may be considered necessary by the Factory medical officer or Certifying surgeon
3.8	Price list of food stuffs being supplied in canteen displayed at a conspicuous place in dining hall	Yes
4.1	Whether Shelters, rest rooms provided	No Section 47 and Rule 72: Provide and maintain adequate and suitable shelter or rest room for the use of the workers.
4.2	Whether lunch rooms provided	Yes
5	Whether Creche provided?	NA
6	Whether Welfare officer appointed?	NA
7.1	Whether Ambulance Room provided?	NA
7.2	Whether whole time medical officer assisted by atleast one qualified nurse or dresser cum compounder appointed?	NA
7.3	Whether Ambulance Van provided?	NA

Health Provisions

Sl.No	Check Points related to Health Provisions	Status
1	Cleanliness status of workplace such as floors, stairs and passages are cleanliness	Yes
2	Effective arrangements are provided for the treatment of waste and effluents	Yes
3	Effective arrangements are provided for control of excess dust and fumes	Yes
4	Drinking water facilities available in factory	Yes
5	Latrines and urinals are provided in proportion to the no. of male and female workers employed	Yes

6	Latrines and urinals are maintained in a clean and sanitary condition	No Section 19 Rule 40-43: Latrines and urinals shall be maintained in a clean and sanitary condition at all times.
7	Sufficient and suitable lighting (natural or artificial or both) shall be provided in every part of factories	Yes
8	Adequate ventilation by the circulation of fresh air provided	Yes
Occupational Health Centres		
Sl.No	**Observations**	**Status**
1	Whether Occupational Health Centre provided?	No Section 41-C and Rule 61(SC)(B): (51-200 workers) (i) Provide and maintain in good order and âoccupational health centerâ having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.
2	Whether medical officer is appointed? Whether qualified and trained dresser cum compounder Whether a minimum of 5 persons are trained in First aid procedures	No
3	Whether a fully equipped ambulance van provided?	No Section 41(C) and Rule 61(SC)(C): Make arrangements for procuring an Ambulance van suitably constructed and equipped with emergency care equipments at short notice from a near by hospital or any other place.
4	Pre employment and Periodical (once in six months) medical examination of all the workers engaged in hazardous process carried out	No Section 41(C) and Rule 61(SC)(A): Get the workers including contract workers medically examined by a certifying surgeon immediately and once in a period of 6 months thereafter, to ascertain their health status.
Other Provisions		
Sl.No	**Check Points related to Other Provisions**	**Status**
1	Muster roll maintained	No Section 112 Rule 103 read with Rule 102 â A: Produce the muster roll in respect of the workers working in the factory.
2	Payment of wages Register maintained	No Payment of wages Act and Rules: Rule 5: Produce the Record of Payment of wages to all the workers.
3	Overtime Register maintained	No Section 59 Rule 78 â C: (i) Issue over time slips to the workers duly signed by the manager furnishing the period of over time work immediately after the completion of over time work. (ii) Pay double the rate of normal wages for the over time work done by the workers and maintain record.
3.1	Overtime within prescribed limits i.e., less than or equal to 50 hours in a quarter?	Yes

4	Accident Register maintained	No Section 112 Rule 102-A: Produce the Record of Accidents that took place in the Factory.
5	Leave with wages Register maintained	No Section 83 Rule 87 read with Rule 102-A: Produce the record of leave with wages allowed to each worker.
6	Maternity Benefit Act and Rules maintained	NA
7	Common Annual Return submitted	No Section 110 Rule 100: Submit the Annual return for the year ending 2019 immediately as it was not submitted before the due date i.e., 30th April.
8	Building Stability Certificate received from competent Person for New Registration of Factories	NA
9	Whether weekly off given to Regular / contract workers	Yes
10	Information of accidents and dangerous occurrences as per section 88 and 88-A to the Inspectorate in Form 18 /18-A	Yes
11	Whether a report in form No.19 sent to the Director of Factories in respect of any occupational diseases detected (as mentioned in third schedule of section 89)	NA
	Chemical Orders	
Sl.No	**Observations**	**Status**
1.1	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure relief system / rupture disk	Yes
1.2	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure Gauges	Yes
1.3	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Emergency shut off system	Yes
1.4	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Dump Tank	Yes
1.5	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Bundwall	Yes
2	Sensors with alarm system are provided for detection of leakage of chemicals	Yes
3	Safe Operating Procedures (SOP) for carrying all hazardous operations are prepared / displayed at all work areas	Yes
4	Has the management prepared on-site emergency plan as per the MSIHC Rules, 1989	Yes

5	Whether mock drills conducted as per on-site emergency plan	Yes
6	Technique adopted to assess the hazards (i) Risk Assessment report (ii) Hazop study report	Yes
7	Whether Safety audit report required as per MSIHC Rules, 1989 Submitted to the Director of Factories?	Yes
8	Disclosure of information regarding hazards / dangers including health hazards from design stage to disposal and measures taken to overcome such hazards arising from the exposure to or handling of the material or substances in the manufacturing process, to the workers. To the chief inspector of factories and local authority before commencement of manufacturing process and also subsequently whenever there is change in the process as per the section 41-B /Section 87 and rule 95 and Sch-XV	NA
9	Precautions against ignition a) Flame proof electrical fittings in areas of risk b) Effective measures for prevention of accumulation of static charge c) Workers shoes without iron or steel nails to cause friction d) Prohibition of smoking	Yes
Special Standard Order		
Sl.No	**Observations**	**Status**

Signature of Inspecting Officer
(Y.Gangadhar Reddy)
Deputy Chief Inspector of Factories, Karimnagar,
Telangana

Annexure 8(c):

CHECKLIST FOR INSPECTION OF FACTORIES IN TELANGANA STATE		
General Information		
Sl.No	**Description**	**Status**
1	Date of Inspection	22/10/2021
2	Registration Number	42472
3	Name of the Factory	Sigachi Industries Limited
	Is there any change in Name of the Factory?	No
4	Address of factory	Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy
	Working Factory (or) Not Working Factory?	Working Factory
5	Maximum number of workers to be employed (Licence Limit) Total number of workers employed a) Regular workers - Male b) Regular workers - Female c) Contract workers - Male d) Contract workers - Female	130 130 a) 66 b) 4 c) 58 d) 2
	Is there any change in workers Licence Limit?	No
6	a) Maximum Horse Power to be Installed in hp (Licence Limit) b) Actual Power Installed in hp c) Stand by Power in KVA / KW	a) 818 b) 818 c) 380 KVA
	Is there any change in Installed hp / Stand by power?	No
7	Manufacturing Process	Manufacturing of Micro crystalline cellulose powder,powdered cellulose
8	Licence Renewed up to	31/12/2021
	Licence fee paid	Yes
	Annual Return Submitted	No
9	Whether plans of the factory are approved?	Yes
9.1	Factory building plans approved detail	D.Dis A2/SR-I/1800/2014
9.2	Are there any Plan deviations?	Yes Section 6 Rule 3A(6) rwr section 112 & rule 102 A rwr 102: Copy of the detailed plans approved plans were not produced for verification during the visit, Immediately Submit the same to the office of the Deputy Chief Inspector of Factories, SangaReddy for verification.
9.3	Are there any additional constructions / machinery installations?	No
10	Occupier Details	Name : Amit Raj Sinha Mobile No. : 9392259755 e-mail : Father Name : RP Sinha Age : 48
	Is there any change in Occupier?	Yes Section 6 Rule 8: Failed to apply for transfer of licence from S. Chidambaranatham to Amit Raj Sinha Immediately apply on line.
11	Factory Manager Details	Name : M E Elangovan Mobile No. : 9391249755 e-mail : Father Name : MR Elumaiah Age :
	Is there any change in Manager?	No

12	Responsible Person Details	Name : KVS Seethaiah Mobile No. : e-mail : Father Name : Age :
13	Is there any child labour employment?	No
14	Is there any adolescent worker employment without certificate of fitness?	No
Safety Provisions		
Sl.No	**Check Points related to Safety Provisions**	**Status**
1	Whether Safety guards or fencing is provided to the moving parts of the machinery	No Section 21(1)(iv) (b): 1.Provide Secure and substantial weld mesh box guards to enclose completely the following (i) Pulleys and belts drives of the (a) ID fan of the Boiler (b) Coal crusher (c) v belt of the pulveriser (d) Stirrer of the Preparation tank. 2.Provide Secure and substantial cover guards to cover the coupling of the (i) Thermic fluid heater pumps 3.Provide Secure and substantial cover guards to cover the exposed portion of the shaft of the(i) ID fan of the Boiler
2	Whether hoist and lifts examined by competent person?	NA
3	Whether lifting machines, chains, ropes and lifting tackles examined by competent person?	Yes
4	Whether pressure vessels examined by competent person?	Yes

5	Floors, stairs with handrails, safe means of access, and platforms with toeboards provided and maintained properly	No Sec 32: 1.Provide substantial Hand railing of at least 1.2 metres height to the FLOORS /PLATFORMS of the (i) Furnace platform (ii) Coal crusher (iii) Thermic fluid heater(iv) GLM bottom area platform (v) spray drier floor exhaust (vi) Cooling tower AHU floor 1(a).Provide substantial mid rail to the Hand railing provided to the FLOORS /PLATFORMS of the (i)Stage V Blender equipment 2.Provide substantial Hand railing of at least 1.2 metres height to the steps /ladder provided to the(i) Coalcrusher (ii) Thermic fluid heater(iii) GLM bottom area platform 2(a)Provide substantial mid rail to the Hand railing provided to the steps /ladder provided to the(i) 1st floor of the main shed 3.Provide substantial Hand railing of at least 1.2 metres height on the second side to the steps /ladder provided to the(i) boiler section 4.Provide suitable D-Ring or spiral back rings to the vertical ladder provided to the(i) Aerobic reactor (ii)Un aerobic reactor (iii) Slurry feed tank 5.Provide Substantial toe boards of at least 15 cms height to the FLOORS /PLATFORMS of the (i) Furnace platform (ii) Coal crusher (iii) Boiler coal feed elevator (iv) GLM bottom area platform (v) Stage V Blender equipment (vi) Office building (vii) spray drier floor exhaust 6.Provide Substantial toe boards of at least 15 cms height to the (1) landing places of the steps/stair cases at (i) Boiler Chimney- 2nos. (ii) 1st floor of the main shed 7.Provide Substantial toe boards of at least 15 cms height to the (a) walk ways provided to the (i) coal belt conveyors 8.Do not store the materials in the path marked for the movement of the men and materials hindering /obstructing the free movement of the men and materials. 9. The pipe lines and cables laid on the floors hindering the free and safe movement of the men and material ,shall be laid in underground trenches. 10. Provide iron grill grating /sheets to cover the gaps between the floors/platforms and the machinery/equipments/pipelines. 11.Remove the scrape and used material and old obsolete machinery /equipment from the floors of the working areas, shift them to the scrape yards. 12. Lot of material stored, obstructing the ways. Immediately remove them.
6	Are all the pits, sumps, openings in floors are securely covered or fenced?	No Section33: Provide secure and substantial hand rails to the following (i) Cooling Tower Solar pit in ETP
7	Whether Eye sight and colour vision of the persons employed to operate or to give signals to a crane / locomotive / fork lift truck examined by a qualified ophthalmologist?	No Section 35 Rule 61-J: Get the Eye sight and colour vision of the persons employed to operate or to give signals to a /fork lift truck examined by a qualified ophthalmologist i. Pre employment examination ii. Once in every 12 months for the persons up to the age of 45 Years iii. Once in every 06 months for the persons beyond the age of 45 Years
8	Are sufficient number of exits from every machinery hall provided?	No Section 38 Rule 61: Provide fire exits from all the rooms and places of working without any obstruction. Exits shall be marked clearly visible and with suitable illumination.
9	Whether adequate fire fighting equipment provided and workers are trained in fire fighting?	Yes
10	Whether thick rubber matting (or) insulating stand provided at electrical panels?	Yes

11	Whether all electric wiring Laid in permanent conduits to prevent danger to work men?	No Section 41 and Rule 61(B)(19): Loose and temporary electric wiring is found in the Factory. Lay all such electric wiring in permanent conduits to prevent danger to work men.
12	Three way plug pin used for supply to portable electrical apparatus	No Section 41 and Rule (B)(15): Use 3 way plug pin for taking supply to portable electrical apparatus.
13	Earth Leakage Circuit Breaker (ELCB) provided in the main circuit, to protect the persons working on electrical equipment from excess of leakage current	Yes
14	Proper earthing to the portable electric apparatus Provided	Yes
15	Whether Qualified Safety officers appointed?	No Section 40-B Rule 61-A: Appoint a qualified Safety officer in the factory in accordance with the provisions of Rule 61-A.
16	Whether a Safety committee is constituted?	Yes Section 41(G) AND Rule 61(SG)A: Send the list of the safety committee members and also send the copies of the minutes of the last 4 meetings held to the office of the Deputy Chief Inspector of Factories ,Sangareddy. . In future inform the dates of the safety committee periodical meetings in advance ,along with the agenda/minutes of the meeting to the Deputy Chief Inspector of Factories ,Sangareddy.
17	As per Indian Standard, Personal Protective Equipment like safety belts, helmets, safety shoes, goggles, mask and gloves are available in sufficient quantity for workers employed therein	No Section 41 Rule 61 E: Ensure to wear the following personal protective equipment to the workers and maintain them : 1) Suitable heat resistant hand aprons face shield , goggles ,caps to the workers employed at the boiler section and the workers handling the hot materials. 2) Suitable acid resistant hand aprons face shield , goggles ,caps to the workers employed at the Chemical Lab and the workers handling the corrosive materials. 3) Suitable safety helmets and safety shoes 4) Suitable canister mask with self breathing apparatus to use in case of emergencies.
18	Health and Safety Policy prepared and displayed	Yes
19	Whether persons who possess qualifications and experience to supervise handling of hazardous substances appointed?	Yes
20	Whether Work permits for critical / jobs are followed and record maintained	No Section 7-A(2) read with Sec.41 and Rule 61-F(3): Implement permit to work systems for the following works. Submit the copies to this office. (i) Working at heights / fragile roofs, (ii) Mechanical maintenance works, (iii) Excavation works, (iv) Work in confined spaces, (v) Electrical works (vi) Hot work
21	Safety training given to all workers	No Section 7-A(2): Provide adequate pre- employment and periodical Safety training (with external and Internal expertise safety professionals / faculty members) to all workers including the contract and causal workers.
22	Whether any walls / structures damaged in the factory?	Yes
Fire Prevention and Control		

Sl.No	Observations	Status
1	Whether fire hydrant systems are provided to all the hazardous areas which are prone to Fire?	No Section 38 and Rule 61: Failed to provide pressurized fire hydrant system with sufficient storage of water, fire pump and jockey pump inside the factory premises and ensure that 7 Kg/cm2 pressure is maintained in the fire hydrant line.
2	Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors for ventilations ducts, pneumatic conveyors and similar equipment Provided	No Section 38 Rule 61 read with Section 7A(2): Provide Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors.
3	Unobstructed access to fire fighting provided	No Section 38 and Rule 61(2)(a): Provide Unobstructed access for fire fighting with proper provision and maintenance of Roads.
4	Is protection from lightening provided a) For building in which explosive / flammable substances are manufactured, stored or handled b) Storage tanks containing flammable liquids c) Buildings, tall chimneys or sacks where flammable gases or vapours likely to present d) Substation buildings / transformers / switch yards	Yes
	Welfare Amenities	
Sl.No	**Check Points related to Welfare Provisions**	**Status**
1	Adequate and suitable facilities for washing provided and maintained for the use of the workers	Yes
2	First aid facilities available in factory	No 1. Section 45 Rule 63C: Provide a first aid box, containing the equipment prescribed in the sub-rule 63C applicable and keep it incharge of responsible person, trained in first aid treatment.
3.1	Whether Canteen provided?	NA
4.1	Whether Shelters, rest rooms provided	No Section 47 and Rule 72: Provide and maintain adequate and suitable shelter or rest room for the use of the workers.
4.2	Whether lunch rooms provided	Yes
5	Whether Creche provided?	NA
6	Whether Welfare officer appointed?	NA
7.1	Whether Ambulance Room provided?	NA
7.2	Whether whole time medical officer assisted by atleast one qualified nurse or dresser cum compounder appointed?	NA
7.3	Whether Ambulance Van provided?	NA
	Health Provisions	

Sl.No	Check Points related to Health Provisions	Status
1	Cleanliness status of workplace such as floors, stairs and passages are cleanliness	Yes
2	Effective arrangements are provided for the treatment of waste and effluents	Yes
3	Effective arrangements are provided for control of excess dust and fumes	Yes
4	Drinking water facilities available in factory	Yes
5	Latrines and urinals are provided in proportion to the no. of male and female workers employed	Yes
6	Latrines and urinals are maintained in a clean and sanitary condition	Yes
7	Sufficient and suitable lighting (natural or artificial or both) shall be provided in every part of factories	Yes
8	Adequate ventilation by the circulation of fresh air provided	No Section 13 Rule 17-A: i.Provide sufficient number of turbo roof ventilators over (i) Gable roof sheds (a) Finished product Godown ii).Sufficient number of windows / ventilators shall be provided to the following machinery sheds and the rooms , such that the centre distance between two consecutive windows / ventilators shall not be more than 3metres: a) Finished product Godown
Occupational Health Centres		
Sl.No	**Observations**	**Status**
1	Whether Occupational Health Centre provided?	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and occupational health centerâ having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.
2	Whether medical officer is appointed? Whether qualified and trained dresser cum compounder Whether a minimum of 5 persons are trained in First aid procedures	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and occupational health centerâ having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.

3	Whether a fully equipped ambulance van provided?	No Section 41(C) and Rule 61(SC)(C): 1. Make arrangements for procuring an Ambulance van suitably constructed and equipped with emergency care equipments at short notice from a near by hospital or any other place. (for Hazardous factories employing <200 workers)
4	Pre employment and Periodical (once in six months) medical examination of all the workers engaged in hazardous process carried out	No Section 41(C) and Rule 61(SC)(A) Section 112 rw Section 102 Rw section 102 A : submit the register/records of the medical examination of all the workers including contract workers, conducted by the certifying surgeon once in a period of 6 months thereafter, to ascertain their health status.
Other Provisions		
Sl.No	**Check Points related to Other Provisions**	**Status**
1	Muster roll maintained	No Section 112 Rule 103 read with Rule 102 A: Produce the muster roll registers (at least last 3 years)in respect of the all workers including contract and causal workers working in the factory.
2	Payment of wages Register maintained	No Payment of wages Act and Rules: Rule 5: Produce the (at least last 3 years) Record of Payment of wages to all the workers.
3	Overtime Register maintained	No Section 59 Rule 78 â C: (i) Issued over time slips to the workers duly signed by the manager furnishing the period of over time work immediately after the completion of over time work. (ii) Pay double the rate of normal wages for the over time work done by the workers and maintain record.
3.1	Overtime within prescribed limits i.e., less than or equal to 50 hours in a quarter?	Yes
4	Accident Register maintained	No Section 112 Rule 102-A: Produce the Record of Accidents that took place in the Factory.
5	Leave with wages Register maintained	No Section 83 Rule 87 read with Rule 102-A: Produce the (at least last 3 years) record of leave with wages allowed to each worker.
6	Maternity Benefit Act and Rules maintained	No Section 112 rwr Section 102 Rw Rule 102 A submit the (at least last 3 years)record of the women workers maintained under the Maternity benefit Act.
7	Common Annual Return submitted	No Section 110 Rule 100: Submit the Annual return for the year ending 2020 immediately as it was not submitted before the due date .
8	Building Stability Certificate received from competent Person for New Registration of Factories	NA
9	Whether weekly off given to Regular / contract workers	Yes
10	Information of accidents and dangerous occurrences as per section 88 and 88-A to the Inspectorate in Form 18 /18-A	Yes

11	Whether a report in form No.19 sent to the Director of Factories in respect of any occupational diseases detected (as mentioned in third schedule of section 89)	Yes
	Chemical Orders	
Sl.No	**Observations**	**Status**
1.1	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure relief system / rupture disk	Yes
1.2	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure Gauges	Yes
1.3	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Emergency shut off system	Yes
1.4	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Dump Tank	Yes
1.5	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Bundwall	No No Section 87 and Rule 95 Sch. XV Part III: Para-5: (i) Provide bund walls for the storage tanks of HCL.
2	Sensors with alarm system are provided for detection of leakage of chemicals	Yes
3	Safe Operating Procedures (SOP) for carrying all hazardous operations are prepared / displayed at all work areas	No Section 7-A(2) read with Section 41 and Rule 61-F(3): Prepare and display Safe operating procedures for carrying all Hazardous operations.
4	Has the management prepared on-site emergency plan as per the MSIHC Rules, 1989	No Section 41-B(4): 1.Submit the copies of the following : Latest (i) on-site emergency plan of the factory. (ii) chemical fact sheets. (iii) safety survey report. (iv) inventory of chemical.
5	Whether mock drills conducted as per on-site emergency plan	No Sec.41-B(4) of Factories Act and Rule 13(4) of M.S.I.H.C.Rules: Preferably In the presence of the Factories Department authorities & Local crises group members ,Conduct the mock drill of on-site emergency plan once in every 6 months and all the scenarios contemplated in the on-site emergency plan shall be tried one after the other. Submit the Reports of the mock drill such conducted in your factory premises to the office of the Deputy Chief Inspector of Factories, Sangareddy.
6	Technique adopted to assess the hazards (i) Risk Assessment report (ii) Hazop study report	No Section 7(A)(2)(c)(e) read with and Rule 102 of Factories Act 1948; and Rule 4(2) of manufacturing, storage and import of hazards chemicals rules 1989 under Environment protection Act 1986: Prepare a hazard analysis and risk assessment reportand submit a copy of such report to this office in triplicate.
7	Whether Safety audit report required as per MSIHC Rules, 1989 Submitted to the Director of Factories?	NA

8	Disclosure of information regarding hazards / dangers including health hazards from design stage to disposal and measures taken to overcome such hazards arising from the exposure to or handling of the material or substances in the manufacturing process, to the workers. To the chief inspector of factories and local authority before commencement of manufacturing process and also subsequently whenever there is change in the process as per the section 41-B /Section 87 and rule 95 and Sch-XV	Yes
9	Precautions against ignition a) Flame proof electrical fittings in areas of risk b) Effective measures for prevention of accumulation of static charge c) Workers shoes without iron or steel nails to cause friction d) Prohibition of smoking	NA
Special Standard Order		
Sl.No	**Observations**	**Status**
1	Drier & Ovens	Section 41 & Rule 61 (o): 1. Electrical power supplied to the driers/ ovens shall be by means of a separate circuit. 2. Driers/Oven shall be provided with a positive and effective safety ventilations system. 3. Driers/Oven shall be provided with suitably designed explosion panels. 4. Driers/Oven shall be provided and maintained with efficient interlocking arrangements. 5. Driers/Oven shall be provided with automatic arrangement to ensure desired Temperature. 6. Driers/Oven shall be provided maintained, thoroughly examined, and tested at Frequent intervals to ensure its safe operations by a responsible person designated by Occupier or Manager. 7. A register shall be maintained giving details of c=various tested carried out and Signed by person making the tests.

2	other orders	Section 7(A)-(2): 1.Ensure all the nuts and bolts of the reactor lids were fixed and tightened . 2.Conduct the Illumination survey and improve the lighting and submit to this office within 7 days , the compliance on the recommendations mentioned in the survey. 3.Mark / Paint the flow directions to the pipe lines AS PER ISO CODES , connected to the reactors. 4.Display the dos and donts boards at the conspicuous places in every section. 5.Replace the rusted water pipe lines of the cooling water. 6.Ensure to store the raw material and finished after checking their compatibility. 7.Store drums /carbouys in the shade on the acid proof floors. 8. At low height structures areas . Provide the caution boards and rubber padding to avoid injuries to the head of the workers. 9 . Provide substantial covers to the (i) glass water level indicators (a) Boilers 10.Provide Over head water shower with eye wash fountain at the (i) Corrosive chemicals storage area and display the caution boards. 11. Paint the walkways /path on the floors in the factory premises to demarcate for the movement of the men and materials. 12.Paint the specifications, date of testing ,due date of testing etc on the pressure vessels and lifting machinery. 13.Display speed limits and the directional boards to guide the vehicles allowed inside. 14.Ensure the drivers posses with the valid driving licence with them , when the transport vehicles are allowed inside the factory premises. 15. Check the vehicles drivers and all the workers to ensure that they had not consumed any alcohol. 16.A Ladder of 30 metres were provided to the chimney of the boiler (2nos), with only one landing place. For the safety Modified the ladder providing a landing places at height of every 12 feet and the ladder located staggered. 17. At some places in the factory premises ,there is no clear gap of at least 3 metres distance from the compound walls and the machinery /equipments/rooms etc. Provide at least 3 metres clear distance for free movement of the fire tenders in case of emergency. 18. Remove the abandon equipments/machinery and structures and improve the house keeping and create space for free and safe movement of the men and materials in the floors of the working places in the factory premises 19. The working areas were dumped with the materials and products blocking the way to out. Immediately remove the same and report. 20 .Work places are over crowded. Ensure to limit the workers as per norms. 21.)Submit the copy of the CEIG, certificate /letter issued, in regard to the power installed load particulars of your factory. . COVID GUIDELINES (i)Guide lines issued by Government with regard to measures to be adopted for avoiding spread of Corona Virus shall be followed. (ii)Safe distancing shall be ensured while transporting the workers, allowing the workers in the factory premises, taking lunch, tea etc, working areas etc (iii) Sanitizers and shall be provided for the use of workers Provision shall be made for safe disposal of used masks

		Section 112 rwr Section 102 Rw Rule 102 A : Immediately comply the above mentioned items and without fail SUBMIT WITH IN A WEEK, THE COMPLIANCE REPORT along with a set of copies of the photos , documents as proof of compliance to THE OFFICE OF THE DEPUTY CHIEF INSPECTOR OF FACTORIES SANGAREDDY . Upload the soft copy of the same.

(Maroju Praveen Kumar)
Deputy Chief Inspector of Factories, Sangareddy,
Telangana

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Annexure 8(d):

CHECKLIST FOR INSPECTION OF FACTORIES IN TELANGANA STATE		
General Information		
Sl.No	Description	Status
1	Date of Inspection	24/11/2022
2	Registration Number	42472
3	Name of the Factory	Sigachi Industries Limited
	Is there any change in Name of the Factory?	No
4	Address of factory	Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy
	Working Factory (or) Not Working Factory?	Working Factory
5	Maximum number of workers to be employed (Licence Limit) Total number of workers employed a) Regular workers - Male b) Regular workers - Female c) Contract workers - Male d) Contract workers - Female	130 127 a) 85 b) 5 c) 35 d) 2
	Is there any change in workers Licence Limit?	No
6	a) Maximum Horse Power to be Installed in hp (Licence Limit) b) Actual Power Installed in hp c) Stand by Power in KVA / KW	a) 818 b) 1777 c) 380 KVA
	Is there any change in Installed hp / Stand by power?	Yes Sec.6 Rule 5: The licence granted is for the limit not exceeding 818 HP which has been exceeded by installing 1777 HP as found at the time of inspection and no application has been made for amendment of licence so far.
7	Manufacturing Process	Manufacturing of Micro crystalline cellulose powder,powdered cellulose
8	Licence Renewed up to	31/12/2022
	Licence fee paid	Yes
	Annual Return Submitted	No
9	Whether plans of the factory are approved?	Yes
9.1	Factory building plans approved detail	Lr.No.D.Dis.A1/SRD/5426/2021, Dated: 25.12.2021
9.2	Are there any Plan deviations?	No
9.3	Are there any additional constructions / machinery installations?	No
10	Occupier Details	Name : AMIT RAJ SINHA Mobile No. : 9392259755 e-mail : Father Name : RP Sinha Age : 49
	Is there any change in Occupier?	No
11	Factory Manager Details	Name : M E Elangovan Mobile No. : 9391279755 e-mail : Father Name : MR Elumaiah Age : 50
	Is there any change in Manager?	No

CHECKLIST FOR INSPECTION OF FACTORIES IN TELANGANA STATE		
General Information		
Sl.No	**Description**	**Status**
1	Date of Inspection	24/11/2022
2	Registration Number	42472
3	Name of the Factory	Sigachi Industries Limited
	Is there any change in Name of the Factory?	No
4	Address of factory	Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy
	Working Factory (or) Not Working Factory?	Working Factory
5	Maximum number of workers to be employed (Licence Limit) Total number of workers employed a) Regular workers - Male b) Regular workers - Female c) Contract workers - Male d) Contract workers - Female	130 127 a) 85 b) 5 c) 35 d) 2
	Is there any change in workers Licence Limit?	No
6	a) Maximum Horse Power to be Installed in hp (Licence Limit) b) Actual Power Installed in hp c) Stand by Power in KVA / KW	a) 818 b) 1777 c) 380 KVA
	Is there any change in Installed hp / Stand by power?	Yes Sec.6 Rule 5: The licence granted is for the limit not exceeding 818 HP which has been exceeded by installing 1777 HP as found at the time of inspection and no application has been made for amendment of licence so far.
7	Manufacturing Process	Manufacturing of Micro crystalline cellulose powder,powdered cellulose
8	Licence Renewed up to	31/12/2022
	Licence fee paid	Yes
	Annual Return Submitted	No
9	Whether plans of the factory are approved?	Yes
9.1	Factory building plans approved detail	Lr.No.D.Dis.A1/SRD/5426/2021, Dated: 25.12.2021
9.2	Are there any Plan deviations?	No
9.3	Are there any additional constructions / machinery installations?	No
10	Occupier Details	Name : AMIT RAJ SINHA Mobile No. : 9392259755 e-mail : Father Name : RP Sinha Age : 49
	Is there any change in Occupier?	No
11	Factory Manager Details	Name : M E Elangovan Mobile No. : 9391279755 e-mail : Father Name : MR Elumaiah Age : 50
	Is there any change in Manager?	No

12	Responsible Person Details	Name : M E Elangovan Mobile No. : e-mail : Father Name : Age :
13	Is there any child labour employment?	No
14	Is there any adolescent worker employment without certificate of fitness?	No
Safety Provisions		
Sl.No	**Check Points related to Safety Provisions**	**Status**
1	Whether Safety guards or fencing is provided to the moving parts of the machinery	No Section 21(1)(iv) (b): 1.Provide Secure and substantial weld mesh box guards to enclose completely the following (i) Pulleys and belts drives of the (a) ID fan of the Boiler (b) Coal crusher (c) v belt of the pulveriser (d) Stirrer of the Preparation tank. 2.Provide Secure and substantial cover guards to cover the coupling of the (i) Thermic fluid heater pumps 3.Provide Secure and substantial cover guards to cover the exposed portion of the shaft of the(i) ID fan of the Boiler
2	Whether hoist and lifts examined by competent person?	NA
3	Whether lifting machines, chains, ropes and lifting tackles examined by competent person?	Yes
4	Whether pressure vessels examined by competent person?	Yes
5	Floors, stairs with handrails, safe means of access, and platforms with toeboards provided and maintained properly	Yes
6	Are all the pits, sumps, openings in floors are securely covered or fenced?	Yes
7	Whether Eye sight and colour vision of the persons employed to operate or to give signals to a crane / locomotive / fork lift truck examined by a qualified ophthalmologist?	Yes
8	Are sufficient number of exits from every machinery hall provided?	No Section 38 Rule 61: Provide fire exits from all the rooms and places of working without any obstruction. Exits shall be marked clearly visible and with suitable illumination.
9	Whether adequate fire fighting equipment provided and workers are trained in fire fighting?	Yes
10	Whether thick rubber matting (or) insulating stand provided at electrical panels?	Yes
11	Whether all electric wiring Laid in permanent conduits to prevent danger to work men?	No Section 41 and Rule 61(B)(19): Loose and temporary electric wiring is found in the Factory. Lay all such electric wiring in permanent conduits to prevent danger to work men.
12	Three way plug pin used for supply to portable electrical apparatus	No Section 41 and Rule (B)(15): Use 3 way plug pin for taking supply to portable electrical apparatus.

13	Earth Leakage Circuit Breaker (ELCB) provided in the main circuit, to protect the persons working on electrical equipment from excess of leakage current	Yes
14	Proper earthing to the portable electric apparatus Provided	Yes
15	Whether Qualified Safety officers appointed?	Yes
16	Whether a Safety committee is constituted?	No Section 41(G) AND Rule 61(SG)A: Constitute a safety committee in the factory as provided in these rules, with equal representation from management, as well as workers side. Send the list of safety committee members to the undersigned, conduct periodical meetings of the safety committee (atleast once in a quarter) and send copies of minutes of meeting to the Inspector of Factories.
17	As per Indian Standard, Personal Protective Equipment like safety belts, helmets, safety shoes, goggles, mask and gloves are available in sufficient quantity for workers employed therein	No Section 41 Rule 61 E: Ensure to wear the following personal protective equipment to the workers and maintain them : 1) Suitable heat resistant hand aprons face shield , goggles ,caps to the workers employed at the boiler section and the workers handling the hot materials. 2) Suitable acid resistant hand aprons face shield , goggles ,caps to the workers employed at the Chemical Lab and the workers handling the corrosive materials. 3) Suitable safety helmets and safety shoes 4) Suitable canister mask with self breathing apparatus to use in case of emergencies.
18	Health and Safety Policy prepared and displayed	Yes
19	Whether persons who possess qualifications and experience to supervise handling of hazardous substances appointed?	Yes
20	Whether Work permits for critical / jobs are followed and record maintained	Yes
21	Safety training given to all workers	No Section 7-A(2): Provide Safety training to all workers.
22	Whether any walls / structures damaged in the factory?	Yes

Fire Prevention and Control

Sl.No	Observations	Status
1	Whether fire hydrant systems are provided to all the hazardous areas which are prone to Fire?	No Section 38 and Rule 61: Failed to provide pressurized fire hydrant system with sufficient storage of water, fire pump and jockey pump inside the factory premises and ensure that 7 Kg/cm2 pressure is maintained in the fire hydrant line.
2	Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors for ventilations ducts, pneumatic conveyors and similar equipment Provided	No Section 38 Rule 61 read with Section 7A(2): Provide Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors.
3	Unobstructed access to fire fighting provided	No Section 38 and Rule 61(2)(a): Provide Unobstructed access for fire fighting with proper provision and maintenance of Roads.

4	Is protection from lightening provided a) For building in which explosive / flammable substances are manufactured, stored or handled b) Storage tanks containing flammable liquids c) Buildings, tall chimneys or sacks where flammable gases or vapours likely to present d) Substation buildings / transformers / switch yards	Yes
Welfare Amenities		
Sl.No	**Check Points related to Welfare Provisions**	**Status**
1	Adequate and suitable facilities for washing provided and maintained for the use of the workers	No Section 42 and Rule 62: Provide separately for men and women workers working in the factory adequate and suitable facilities for washing with enough supply of water, soap, nail brushes and towels.
2	First aid facilities available in factory	Yes
3.1	Whether Canteen provided?	NA
4.1	Whether Shelters, rest rooms provided	No Section 47 and Rule 72: Provide and maintain adequate and suitable shelter or rest room for the use of the workers.
4.2	Whether lunch rooms provided	Yes
5	Whether Creche provided?	NA
6	Whether Welfare officer appointed?	NA
7.1	Whether Ambulance Room provided?	NA
7.2	Whether whole time medical officer assisted by atleast one qualified nurse or dresser cum compounder appointed?	NA
7.3	Whether Ambulance Van provided?	NA
Health Provisions		
Sl.No	**Check Points related to Health Provisions**	**Status**
1	Cleanliness status of workplace such as floors, stairs and passages are cleanliness	Yes
2	Effective arrangements are provided for the treatment of waste and effluents	Yes
3	Effective arrangements are provided for control of excess dust and fumes	Yes
4	Drinking water facilities available in factory	Yes

5	Latrines and urinals are provided in proportion to the no. of male and female workers employed	Yes
6	Latrines and urinals are maintained in a clean and sanitary condition	Yes
7	Sufficient and suitable lighting (natural or artificial or both) shall be provided in every part of factories	Yes
8	Adequate ventilation by the circulation of fresh air provided	Yes

Occupational Health Centres

Sl.No	Observations	Status
1	Whether Occupational Health Centre provided?	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and occupational health centerâ having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.
2	Whether medical officer is appointed? Whether qualified and trained dresser cum compounder Whether a minimum of 5 persons are trained in First aid procedures	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and occupational health centerâ having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.
3	Whether a fully equipped ambulance van provided?	No Section 41(C) and Rule 61(SC)(C): 1. Make arrangements for procuring an Ambulance van suitably constructed and equipped with emergency care equipments at short notice from a near by hospital or any other place. (for Hazardous factories employing <200 workers)
4	Pre employment and Periodical (once in six months) medical examination of all the workers engaged in hazardous process carried out	No Section 41(C) and Rule 61(SC)(A) Section 112 rw Section 102 Rw section 102 A : submit the register/records of the medical examination of all the workers including contract workers, conducted by the certifying surgeon once in a period of 6 months thereafter, to ascertain their health status.

Other Provisions

Sl.No	Check Points related to Other Provisions	Status
1	Muster roll maintained	Yes
2	Payment of wages Register maintained	Yes

3	Overtime Register maintained	Yes
3.1	Overtime within prescribed limits i.e., less than or equal to 50 hours in a quarter?	Yes
4	Accident Register maintained	Yes
5	Leave with wages Register maintained	Yes
6	Maternity Benefit Act and Rules maintained	Yes
7	Common Annual Return submitted	No Section 110 Rule 100: Submit the Annual return for the year ending 2021 immediately as it was not submitted before the due date .
8	Building Stability Certificate received from competent Person for New Registration of Factories	NA
9	Whether weekly off given to Regular / contract workers	Yes
10	Information of accidents and dangerous occurrences as per section 88 and 88-A to the Inspectorate in Form 18 /18-A	Yes
11	Whether a report in form No.19 sent to the Director of Factories in respect of any occupational diseases detected (as mentioned in third schedule of section 89)	Yes
	Chemical Orders	
Sl.No	**Observations**	**Status**
1.1	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure relief system / rupture disk	Yes
1.2	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure Gauges	Yes
1.3	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Emergency shut off system	Yes
1.4	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Dump Tank	Yes
1.5	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Bundwall	Yes
2	Sensors with alarm system are provided for detection of leakage of chemicals	Yes
3	Safe Operating Procedures (SOP) for carrying all hazardous operations are prepared / displayed at all work areas	No Section 7-A(2) read with Section 41 and Rule 61-F(3): Prepare and display Safe operating procedures for carrying all Hazardous operations.

4	Has the management prepared on-site emergency plan as per the MSIHC Rules, 1989	No Section 41-B(4): 1.Submit the copies of the following : Latest (i) on-site emergency plan of the factory. (ii) chemical fact sheets. (iii) safety survey report. (iv) inventory of chemical.
5	Whether mock drills conducted as per on-site emergency plan	No Sec.41-B(4) of Factories Act and Rule 13(4) of M.S.I.H.C.Rules: Preferably In the presence of the Factories Department authorities & Local crises group members ,Conduct the mock drill of on-site emergency plan once in every 6 months and all the scenarios contemplated in the on-site emergency plan shall be tried one after the other. Submit the Reports of the mock drill such conducted in your factory premises to the office of the Deputy Chief Inspector of Factories, Sangareddy.
6	Technique adopted to assess the hazards (i) Risk Assessment report (ii) Hazop study report	No Section 7(A)(2)(c)(e) read with and Rule 102 of Factories Act 1948; and Rule 4(2) of manufacturing, storage and import of hazards chemicals rules 1989 under Environment protection Act 1986: Prepare a hazard analysis and risk assessment reportand submit a copy of such report to this office in triplicate.
7	Whether Safety audit report required as per MSIHC Rules, 1989 Submitted to the Director of Factories?	NA
8	Disclosure of information regarding hazards / dangers including health hazards from design stage to disposal and measures taken to overcome such hazards arising from the exposure to or handling of the material or substances in the manufacturing process, to the workers. To the chief inspector of factories and local authority before commencement of manufacturing process and also subsequently whenever there is change in the process as per the section 41-B /Section 87 and rule 95 and Sch-XV	Yes
9	Precautions against ignition a) Flame proof electrical fittings in areas of risk b) Effective measures for prevention of accumulation of static charge c) Workers shoes without iron or steel nails to cause friction d) Prohibition of smoking	NA

Special Standard Order

Sl.No	Observations	Status
1	other orders	

(G.Nehru)
Deputy Chief Inspector of Factories,Nizamabad,
Telangana

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Annexure 8(e):

CHECKLIST FOR INSPECTION OF FACTORIES IN TELANGANA STATE		
General Information		
Sl.No	Description	Status
1	Date of Inspection	16/11/2023
2	Registration Number	42472
3	Name of the Factory	Sigachi Industries Limited
	Is there any change in Name of the Factory?	No
4	Address of factory	Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy
	Working Factory (or) Not Working Factory?	Working Factory
5	Maximum number of workers to be employed (Licence Limit) Total number of workers employed a) Regular workers - Male b) Regular workers - Female c) Contract workers - Male d) Contract workers - Female	200 150 a) 106 b) 4 c) 38 d) 2
	Is there any change in workers Licence Limit?	No
6	a) Maximum Horse Power to be Installed in hp (Licence Limit) b) Actual Power Installed in hp c) Stand by Power in KVA / KW	a) 818 b) 818 c) 380 KVA
	Is there any change in Installed hp / Stand by power?	No
7	Manufacturing Process	Manufacturing of Micro crystalline cellulose powder,powdered cellulose
8	Licence Renewed up to	31/12/2023
	Licence fee paid	Yes
	Annual Return Submitted	Yes
9	Whether plans of the factory are approved?	Yes
9.1	Factory building plans approved detail	Lr.No.D.Dis.A1/SRD/5426/2021, Dated: 25.12.2021
9.2	Are there any Plan deviations?	Yes Section 6 Rule 3A(6) rwr section 112 & rule 102 A rwr 102: Copy of the detailed plans approved plans were not produced for verification during the visit, Immediately Submit the same to the office of the Deputy Chief Inspector of Factories, SangaReddy for verification.
9.3	Are there any additional constructions / machinery installations?	No
10	Occupier Details	Name : AMIT RAJ SINHA Mobile No. : 9392259755 e-mail : Father Name : RP Sinha Age : 52
	Is there any change in Occupier?	No
11	Factory Manager Details	Name : M E Elangovan Mobile No. : 9391279755 e-mail : Father Name : MR Elumaiah Age : 52
	Is there any change in Manager?	No

12	Responsible Person Details	Name : M E Elangovan Mobile No. : e-mail : Father Name : Age :
13	Is there any child labour employment?	No
14	Is there any adolescent worker employment without certificate of fitness?	No

Safety Provisions

Sl.No	Check Points related to Safety Provisions	Status
1	Whether Safety guards or fencing is provided to the moving parts of the machinery	No Section 21(1)(iv) (b): 1.Provide Secure and substantial weld mesh box guards to enclose completely the following (i) Pulleys and belts drives of the (a) ID fan of the Boiler (b) Coal crusher (c) v belt of the pulveriser (d) Stirrer of the Preparation tank. 2.Provide Secure and substantial cover guards to cover the coupling of the (i) Thermic fluid heater pumps (ii) Slurry pumps.(iii) Feeding mechanism of the Sh/PRD?MCC/PUC/01 machine. 3.Provide Secure and substantial cover guards to cover the exposed portion of the shaft of the(i) ID fan of the Boiler
2	Whether hoist and lifts examined by competent person?	NA
3	Whether lifting machines, chains, ropes and lifting tackles examined by competent person?	No Section 29 Rule 55 RW Section 112 RW Rule 102A RW Rule 102: Submit the with in a week copies of the results recorded (i.e.Form No.38) in regard to the examination of the Lifting machine(s)(other than hoist and lift)/chain(s)/rope(s)/lifting tackle(s) done once in a once in a year done by a competent person.
4	Whether pressure vessels examined by competent person?	No Section 31 and Rule 56 RW Section 112 RW Rule 102A RW Rule 102: The pressure vessels are taken into use in the Factory: They shall be thoroughly examined by the competent person (I) Externally once in every period of six months. (II) Internally, once in period of every 12 months. (III) Hydrostatically once in a every period of 4 years. A report of such examination shall be maintained in form No.8 Submit with in a week the copies of the results recorded (i.e.Form No.8) in regard to the examination of the pressure vessels installed in the factory premises.

5	Floors, stairs with handrails, safe means of access, and platforms with toeboards provided and maintained properly	No Sec 32: 1.Provide substantial Hand railing of at least 1.2 metres height to the FLOORS /PLATFORMS of the (i) Furnace platform (ii) Coal crusher (iii) Thermic fluid heater(iv) 2.Provide substantial Hand railing of at least 1.2 metres height to the steps /ladder provided to the(i) Coalcrusher (ii) Thermic fluid heater(iii) GLM bottom area platform 3.Provide substantial Hand railing of at least 1.2 metres height on the second side to the steps /ladder provided to the(i) boiler section 4.Provide suitable D-Ring or spiral back rings to the vertical ladder provided to the(i) Aerobic reactor (ii)Un aerobic reactor (iii) Slurry feed tank 5.Provide Substantial toe boards of at least 15 cms height to the FLOORS /PLATFORMS of the (i) Furnace platform (ii) Coal crusher (iii) Boiler coal feed elevator (iv) Mezzanine floor In the ware house (v) Stage V Blender equipment (vi) Office building (vii) spray drier floor exhaust 6.Provide Substantial toe boards of at least 15 cms height to the (1) landing places of the steps/stair cases at (i) Boiler Chimney- 2nos. (ii) 1st floor of the main shed (ii) Ware house 7.Provide Substantial toe boards of at least 15 cms height to the (a) walk ways provided to the (i) coal belt conveyors 8.Do not store the materials in the path marked for the movement of the men and materials hindering /obstructing the free movement of the men and materials. 9. The pipe lines and cables laid on the floors hindering the free and safe movement of the men and material ,shall be laid in underground trenches. 10. Provide iron grill grating /sheets to cover the gaps between the floors/platforms and the machinery/equipments/pipelines. 10.Remove the scrape and used material and old obsolete machinery /equipment from the floors of the working areas, shift them to the scrape yards. 11. Lot of material stored, obstructing the ways. Immediately remove them.
6	Are all the pits, sumps, openings in floors are securely covered or fenced?	Yes
7	Whether Eye sight and colour vision of the persons employed to operate or to give signals to a crane / locomotive / fork lift truck examined by a qualified ophthalmologist?	Yes
8	Are sufficient number of exits from every machinery hall provided?	No Section 38 Rule 61: Provide fire exits from all the rooms and places of working without any obstruction. Exits shall be marked clearly visible and with suitable illumination.
9	Whether adequate fire fighting equipment provided and workers are trained in fire fighting?	Yes
10	Whether thick rubber matting (or) insulating stand provided at electrical panels?	Yes
11	Whether all electric wiring Laid in permanent conduits to prevent danger to work men?	No Section 41 and Rule 61(B)(19): Loose and temporary electric wiring is found in the Factory. Lay all such electric wiring in permanent conduits to prevent danger to work men.

12	Three way plug pin used for supply to portable electrical apparatus	Yes
13	Earth Leakage Circuit Breaker (ELCB) provided in the main circuit, to protect the persons working on electrical equipment from excess of leakage current	Yes
14	Proper earthing to the portable electric apparatus Provided	Yes
15	Whether Qualified Safety officers appointed?	Yes
16	Whether a Safety committee is constituted?	No Section 41(G) AND Rule 61(SG)A: Send the list of the safety committee members and also send the copies of the minutes of the last 4 meetings held to the office of the Deputy Chief Inspector of Factories ,Sangareddy. . In future inform the dates of the safety committee periodical meetings in advance ,along with the agenda/minutes of the meeting to the Deputy Chief Inspector of Factories ,Sangareddy.
17	As per Indian Standard, Personal Protective Equipment like safety belts, helmets, safety shoes, goggles, mask and gloves are available in sufficient quantity for workers employed therein	No Section 41 Rule 61 N: Ensure to wear the following personal protective equipment to the workers and maintain them : 1) Suitable heat resistant hand aprons face shield , goggles ,caps to the workers employed at the boiler section and the workers handling the hot materials. 2) Suitable acid resistant hand aprons face shield , goggles ,caps to the workers employed at the Chemical Lab and the workers handling the corrosive materials. 3) Suitable safety helmets and safety shoes 4) Suitable canister mask with self breathing apparatus to use in case of emergencies.
18	Health and Safety Policy prepared and displayed	Yes
19	Whether persons who possess qualifications and experience to supervise handling of hazardous substances appointed?	Yes
20	Whether Work permits for critical / jobs are followed and record maintained	No Section 7-A(2) read with Sec.41 and Rule 61-F(3): Implement permit to work systems for the following works.Submit the copies of the same to this office. (i) Working at heights / fragile roofs, (ii) Mechanical maintenance works, (iii) Excavation works, (iv) Work in confined spaces, (v) Electrical works (vi) Hot work
21	Safety training given to all workers	No Section 7-A(2): (i)Provide adequate pre- employment and periodical Safety training (with external and Internal expertise safety professionals / faculty members) to all workers including the contract and causal workers.
22	Whether any walls / structures damaged in the factory?	Yes

Fire Prevention and Control

Sl.No	Observations	Status
1	Whether fire hydrant systems are provided to all the hazardous areas which are prone to Fire?	No Section 38 and Rule 61: Failed to provide pressurized fire hydrant system with sufficient storage of water, fire pump and jockey pump inside the factory premises and ensure that 7 Kg/cm2 pressure is maintained in the fire hydrant line.

2	Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors for ventilations ducts, pneumatic conveyors and similar equipment Provided	No Section 38 Rule 61 read with Section 7A(2): Provide Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors.
3	Unobstructed access to fire fighting provided	Yes
4	Is protection from lightening provided a) For building in which explosive / flammable substances are manufactured, stored or handled b) Storage tanks containing flammable liquids c) Buildings, tall chimneys or sacks where flammable gases or vapours likely to present d) Substation buildings / transformers / switch yards	Yes
Welfare Amenities		
Sl.No	**Check Points related to Welfare Provisions**	**Status**
1	Adequate and suitable facilities for washing provided and maintained for the use of the workers	No Section 42 and Rule 62: Provide separately for men and women workers working in the factory adequate and suitable facilities for washing with enough supply of water, soap, nail brushes and towels.
2	First aid facilities available in factory	No 1. Section 45 Rule 63C: Provide a first aid box, containing the equipment prescribed in the sub-rule63C applicable and keep it incharge of responsible person, trained in first aid treatment.
3.1	Whether Canteen provided?	NA
4.1	Whether Shelters, rest rooms provided	No Section 47 and Rule 72: Provide and maintain adequate and suitable shelter or rest room for the use of the workers.
4.2	Whether lunch rooms provided	Yes
5	Whether Creche provided?	NA
6	Whether Welfare officer appointed?	NA
7.1	Whether Ambulance Room provided?	NA
7.2	Whether whole time medical officer assisted by atleast one qualified nurse or dresser cum compounder appointed?	NA
7.3	Whether Ambulance Van provided?	NA
Health Provisions		
Sl.No	**Check Points related to Health Provisions**	**Status**

1	Cleanliness status of workplace such as floors, stairs and passages are cleanliness	No Section 11: 1.The inside walls of the machinery hall accumulated with dirt. Lime wash the all walls of the machinery hall immediately and it should be continued at interval not exceeding 14 months. 2.The machinery halls and surroundings of the Factory should be kept always clean and sanitary.
2	Effective arrangements are provided for the treatment of waste and effluents	Yes
3	Effective arrangements are provided for control of excess dust and fumes	Yes
4	Drinking water facilities available in factory	Yes
5	Latrines and urinals are provided in proportion to the no. of male and female workers employed	Yes
6	Latrines and urinals are maintained in a clean and sanitary condition	No Section 19 Rule 40-43: Latrines and urinals shall be maintained in a clean and sanitary condition at all times.
7	Sufficient and suitable lighting (natural or artificial or both) shall be provided in every part of factories	Yes
8	Adequate ventilation by the circulation of fresh air provided	No Section 13 Rule 17-A: i. Provide doors and windows as per the plans approved by the Director of Factories, T.S., Hyderabad.
Occupational Health Centres		
Sl.No	**Observations**	**Status**
1	Whether Occupational Health Centre provided?	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and occupational health center a having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.
2	Whether medical officer is appointed? Whether qualified and trained dresser cum compounder Whether a minimum of 5 persons are trained in First aid procedures	No
3	Whether a fully equipped ambulance van provided?	No Section 41(C) and Rule 61(SC)(C): 1. Make arrangements for procuring an Ambulance van suitably constructed and equipped with emergency care equipments at short notice from a near by hospital or any other place.

4	Pre employment and Periodical (once in six months) medical examination of all the workers engaged in hazardous process carried out	No Section 41(C) and Rule 61(SC)(A) Section 112 rw Section 102 Rw section 102 A : Submit the register/records (form no 17A/17B) of the medical examination of all the workers including contract workers, conducted by the certifying surgeon once in a period of 6 months thereafter, to ascertain their health status.
Other Provisions		
Sl.No	**Check Points related to Other Provisions**	**Status**
1	Muster roll maintained	No Section 112 Rule 103 read with Rule 102 A: Produce the muster roll registers (at least last 3 years)in respect of the all workers including contract and causal workers working in the factory.
2	Payment of wages Register maintained	No Payment of wages Act and Rules: Rule 5: Produce(at least last 3 years) the Record of Payment of wages to all the workers.
3	Overtime Register maintained	No Section 59 Rule 78 â C: (i) Issued over time slips to the workers duly signed by the manager furnishing the period of over time work immediately after the completion of over time work. (ii) Pay double the rate of normal wages for the over time work done by the workers and maintain record.
3.1	Overtime within prescribed limits i.e., less than or equal to 50 hours in a quarter?	Yes
4	Accident Register maintained	No Section 112 Rule 102-A: Produce the Record of Accidents that took place in the Factory.
5	Leave with wages Register maintained	No Section 83 Rule 87 read with Rule 102-A: Produce the(at least last 3 years) record of leave with wages allowed to each worker.
6	Maternity Benefit Act and Rules maintained	No Section 112 rwr Section 102 Rw Rule 102 A : Produce the (at least last 3 years) records to be maintained for the women workers under Maternity benefit Act.
7	Common Annual Return submitted	Yes Section 110 Rule 100: Submit the Annual return for the year ending 2021 &2022 immediately as it was not submitted before the due date .
8	Building Stability Certificate received from competent Person for New Registration of Factories	NA
9	Whether weekly off given to Regular / contract workers	Yes
10	Information of accidents and dangerous occurrences as per section 88 and 88-A to the Inspectorate in Form 18 /18-A	Yes
11	Whether a report in form No.19 sent to the Director of Factories in respect of any occupational diseases detected (as mentioned in third schedule of section 89)	Yes
Chemical Orders		

Sl.No	Observations	Status
1.1	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure relief system / rupture disk	Yes
1.2	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure Gauges	Yes
1.3	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Emergency shut off system	Yes
1.4	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Dump Tank	Yes
1.5	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Bundwall	Yes
2	Sensors with alarm system are provided for detection of leakage of chemicals	Yes
3	Safe Operating Procedures (SOP) for carrying all hazardous operations are prepared / displayed at all work areas	No Section 7-A(2) read with Section 41 and Rule 61-F(3): Prepare and display Safe operating procedures for carrying all Hazardous operations.
4	Has the management prepared on-site emergency plan as per the MSIHC Rules, 1989	No Section 41-B(4): 1.Submit the Latest copies of the following : (i) on-site emergency plan of the factory. (ii) chemical fact sheets. (iii) safety survey report. (iv) inventory of chemical.
5	Whether mock drills conducted as per on-site emergency plan	No Sec.41-B(4) of Factories Act and Rule 13(4) of M.S.I.H.C.Rules: Preferably In the presence of the Factories Department authorities & Local crises group members ,Conduct the mock drill of on-site emergency plan once in every 6 months and all the scenarios contemplated in the on-site emergency plan shall be tried one after the other. Submit the Reports of the mock drill such conducted in your factory premises to the office of the Deputy Chief Inspector of Factories, Sangareddy.
6	Technique adopted to assess the hazards (i) Risk Assessment report (ii) Hazop study report	No Section 7(A)(2)(c)(e) read with and Rule 102 of Factories Act 1948; and Rule 4(2) of manufacturing, storage and import of hazards chemicals rules 1989 under Environment protection Act 1986: Prepare a hazard analysis and risk assessment reportand submit a copy of such report to this office in triplicate.
7	Whether Safety audit report required as per MSIHC Rules, 1989 Submitted to the Director of Factories?	NA
8	Disclosure of information regarding hazards / dangers including health hazards from design stage to disposal and measures taken to overcome such hazards arising from the exposure to or handling of the material or substances in the manufacturing process, to the workers. To the chief inspector of factories and local authority before commencement of manufacturing process and also subsequently whenever there is change in the process as per the section 41-B /Section 87 and rule 95 and Sch-XV	Yes

9	Precautions against ignition a) Flame proof electrical fittings in areas of risk b) Effective measures for prevention of accumulation of static charge c) Workers shoes without iron or steel nails to cause friction d) Prohibition of smoking	NA
Special Standard Order		
Sl.No	**Observations**	**Status**
1	other orders	Section 7(A)-(2): 1.Ensure all the nuts and bolts of the reactor lids were fixed and tightened . 2.Conduct the Illumination survey and improve the lighting and submit to this office within 7 days , the compliance on the recommendations mentioned in the survey. 3.Mark / Paint the flow directions to the pipe lines AS PER ISO CODES , connected to the reactors. 4.Display the dos and donts boards at the conspicuous places in every section. 5.Ensure to store the raw material and finished after checking their compatibility. 6. At low height structures areas . Provide the caution boards and rubber padding to avoid injuries to the head of the workers. 7 . Provide substantial covers to the (i) glass water level indicators (a) Boilers 8. Paint the walkways /path on the floors in the factory premises to demarcate for the movement of the men and materials. 9.Paint the specifications, date of testing ,due date of testing etc on the pressure vessels and lifting machinery. 10.Display speed limits and the directional boards to guide the vehicles allowed inside. 11.Ensure the drivers posses with the valid driving licence with them , when the transport vehicles are allowed inside the factory premises. 12. Check the vehicles drivers and all the workers to ensure that they had not consumed any alcohol. 13.A Ladder of 30 metres were provided to the chimney of the boiler (2nos), with only one landing place. For the safety Modified the ladder providing a landing places at height of every 12 feet and the ladder located staggered. 1 4. At some places in the factory premises ,there is no clear gap of at least 3 metres distance from the compound walls and the machinery /equipments/rooms etc. Provide at least 3 metres clear distance for free movement of the fire tenders in case of emergency. 15.. The working areas were dumped with the materials and products blocking the way to out. Immediately remove the same and report. 16 .Work places are over crowded. Ensure to limit the workers as per norms 17.)Submit the copy of the CEIG, certificate /letter issued, in regard to the power installed load particulars of your factory.
		Section 112 rwr Section 102 Rw Rule 102 A : Immediately comply the above mentioned items and without fail SUBMIT WITH IN A WEEK, THE COMPLIANCE REPORT along with a set of copies of the photos , documents as proof of compliance to THE OFFICE OF THE DEPUTY CHIEF INSPECTOR OF FACTORIES SANGAREDDY . Upload the soft copy of the same.

(Maroju Praveen Kumar)
Deputy Chief Inspector of Factories, Sangareddy,
Telangana

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Annexure 8(f):

CHECKLIST FOR INSPECTION OF FACTORIES IN TELANGANA STATE		
General Information		
Sl.No	**Description**	**Status**
1	Date of Inspection	12/12/2024
2	Registration Number	42472
3	Name of the Factory	Sigachi Industries Limited
	Is there any change in Name of the Factory?	No
4	Address of factory	Plot No. 20, IDA Phase - I, Pashamylaram, Patancheru, Sangareddy
	Working Factory (or) Not Working Factory?	Working Factory
5	Maximum number of workers to be employed (Licence Limit) Total number of workers employed a) Regular workers - Male b) Regular workers - Female c) Contract workers - Male d) Contract workers - Female	200 197 a) 106 b) 4 c) 83 d) 4
	Is there any change in workers Licence Limit?	No
6	a) Maximum Horse Power to be Installed in hp (Licence Limit) b) Actual Power Installed in hp c) Stand by Power in KVA / KW	a) 818 b) 818 c) 380 KVA
	Is there any change in Installed hp / Stand by power?	No
7	Manufacturing Process	Manufacturing of Micro crystalline cellulose powder,powdered cellulose
8	Licence Renewed up to	31/12/2024
	Licence fee paid	Yes
	Annual Return Submitted	No
9	Whether plans of the factory are approved?	Yes
9.1	Factory building plans approved detail	Lr.No.D.Dis.A1/SRD/5426/2021, Dated: 25.12.2021
9.2	Are there any Plan deviations?	No
9.3	Are there any additional constructions / machinery installations?	No
10	Occupier Details	Name : AMIT RAJ SINHA Mobile No. : 9392259755 e-mail : Father Name : RP Sinha Age : 51
	Is there any change in Occupier?	No
11	Factory Manager Details	Name : M E Elangovan Mobile No. : 9391279755 e-mail : Father Name : MR Elumaiah Age : 52
	Is there any change in Manager?	No
12	Responsible Person Details	Name : M E Elangovan Mobile No. : e-mail : Father Name : Age :
13	Is there any child labour employment?	No

14	Is there any adolescent worker employment without certificate of fitness?	No
Safety Provisions		
Sl.No	**Check Points related to Safety Provisions**	**Status**
1	Whether Safety guards or fencing is provided to the moving parts of the machinery	Yes
2	Whether hoist and lifts examined by competent person?	NA
3	Whether lifting machines, chains, ropes and lifting tackles examined by competent person?	Yes
4	Whether pressure vessels examined by competent person?	Yes
5	Floors, stairs with handrails, safe means of access, and platforms with toeboards provided and maintained properly	Yes
6	Are all the pits, sumps, openings in floors are securely covered or fenced?	Yes
7	Whether Eye sight and colour vision of the persons employed to operate or to give signals to a crane / locomotive / fork lift truck examined by a qualified ophthalmologist?	Yes
8	Are sufficient number of exits from every machinery hall provided?	No Section 38 Rule 61: Provide fire exits from all the rooms and places of working without any obstruction. Exits shall be marked clearly visible and with suitable illumination.
9	Whether adequate fire fighting equipment provided and workers are trained in fire fighting?	No Section 38 Rule 61: Provide adequate and suitable fire fighting equipment. Sufficient number of persons shall be trained in handling fire fighting equipment.
10	Whether thick rubber matting (or) insulating stand provided at electrical panels?	No Section 41 and Rule 61-B(24): Provide thick rubber matting (or) insulating stand permanently in position near electrical panel board.
11	Whether all electric wiring Laid in permanent conduits to prevent danger to work men?	No Section 41 and Rule 61(B)(19): Loose and temporary electric wiring is found in the Factory. Lay all such electric wiring in permanent conduits to prevent danger to work men.
12	Three way plug pin used for supply to portable electrical apparatus	Yes
13	Earth Leakage Circuit Breaker (ELCB) provided in the main circuit, to protect the persons working on electrical equipment from excess of leakage current	Yes
14	Proper earthing to the portable electric apparatus Provided	Yes
15	Whether Qualified Safety officers appointed?	Yes
16	Whether a Safety committee is constituted?	Yes

17	As per Indian Standard, Personal Protective Equipment like safety belts, helmets, safety shoes, goggles, mask and gloves are available in sufficient quantity for workers employed therein	No 1. Section 41 Rule 61 E: Provide the following personal protective equipment to the workers: safety belts, helmets, safety shoes, goggles, mask and gloves
18	Health and Safety Policy prepared and displayed	Yes
19	Whether persons who possess qualifications and experience to supervise handling of hazardous substances appointed?	Yes
20	Whether Work permits for critical / jobs are followed and record maintained	Yes
21	Safety training given to all workers	No Section 7-A(2): Provide adequate pre- employment and periodical Safety training to all workers including the contract and causal workers.
22	All walls / structures in the factory are in good condition?	Yes
23	Whether Power press examined by competent person?	NA
24	Whether Thermic fluid heater examined by competent person?	NA

Fire Prevention and Control

Sl.No	Observations	Status
1	Whether fire hydrant systems are provided to all the hazardous areas which are prone to Fire?	Yes
2	Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors for ventilations ducts, pneumatic conveyors and similar equipment Provided	No Section 38 Rule 61 read with Section 7A(2): i. Provide to provide inert gas suppression system in the panel boards, battery rooms and UPS enclosures to manage electrical emergencies ii. Provide Automatic fire extinguishing appliances, fire resisting dampers electrically interlocked with heat sensitive / smoke detectors.
3	Unobstructed access to fire fighting provided	Yes
4	Is protection from lightening provided a) For building in which explosive / flammable substances are manufactured, stored or handled b) Storage tanks containing flammable liquids c) Buildings, tall chimneys or sacks where flammable gases or vapours likely to present d) Substation buildings / transformers / switch yards	Yes

Welfare Amenities

Sl.No	Check Points related to Welfare Provisions	Status
1	Adequate and suitable facilities for washing provided and maintained for the use of the workers	No Section 42 and Rule 62: Provide separately for men and women workers working in the factory adequate and suitable facilities for washing with enough supply of water, soap, nail brushes and towels.

2	First aid facilities available in factory	No 1. Section 45 Rule 63C: Provide a first aid box, containing the equipment prescribed in the sub-rule63C applicable and keep it incharge of responsible person, trained in first aid treatment.
3.1	Whether Canteen provided?	NA
4.1	Whether Shelters, rest rooms provided	No Section 47 and Rule 72: Provide and maintain adequate and suitable shelter or rest room for the use of the workers.
4.2	Whether lunch rooms provided	Yes
5	Whether Creche provided?	NA
6	Whether Welfare officer appointed?	NA
7.1	Whether Ambulance Room provided?	NA
7.2	Whether whole time medical officer assisted by atleast one qualified nurse or dresser cum compounder appointed?	NA
7.3	Whether Ambulance Van provided?	NA
Health Provisions		
Sl.No	**Check Points related to Health Provisions**	**Status**
1	Cleanliness status of workplace such as floors, stairs and passages are cleanliness	No Section 11: 1.The inside walls of the machinery hall accumulated with dirt. Lime wash the all walls of the machinery hall immediately and it should be continued at interval not exceeding 14 months. 2.The machinery halls and surroundings of the Factory should be kept always clean and sanitary.
2	Effective arrangements are provided for the treatment of waste and effluents	Yes
3	Effective arrangements are provided for control of excess dust and fumes	Yes
4	Drinking water facilities available in factory	Yes
5	Latrines and urinals are provided in proportion to the no. of male and female workers employed	Yes
6	Latrines and urinals are maintained in a clean and sanitary condition	No Section 19 Rule 40-43: Latrines and urinals shall be maintained in a clean and sanitary condition at all times.
7	Sufficient and suitable lighting (natural or artificial or both) shall be provided in every part of factories	Yes

8	Adequate ventilation by the circulation of fresh air provided	Yes
Occupational Health Centres		
Sl.No	**Observations**	**Status**
1	Whether Occupational Health Centre provided?	No Section 41-C and Rule 61(SC)(B): (i) Provide and maintain in good order and occupational health center a having a room with a min. floor area of 15 Sq.Mts and impervious surface and with adequate illumination and ventilation and with necessary equipment. (ii) A part time medical officer, who shall visit the factory atleast twice in a week and whose services shall be readily available during medical emergencies. (iii) One qualified and trained dresser cum compounder on duty through out the working period. (iv) A fully equipped first aid box in all departments.
2	Whether medical officer is appointed? Whether qualified and trained dresser cum compounder Whether a minimum of 5 persons are trained in First aid procedures	No
3	Whether a fully equipped ambulance van provided?	Yes
4	Pre employment and Periodical (once in six months) medical examination of all the workers engaged in hazardous process carried out	Yes
Other Provisions		
Sl.No	**Check Points related to Other Provisions**	**Status**
1	Muster roll maintained	Yes
2	Payment of wages Register maintained	Yes
3	Overtime Register maintained	Yes
3.1	Overtime within prescribed limits i.e., less than or equal to 50 hours in a quarter?	Yes
4	Accident Register maintained	Yes
5	Leave with wages Register maintained	Yes
6	Maternity Benefit Act and Rules maintained	Yes
7	Common Annual Return submitted	No Section 110 Rule 100: Submit the Annual return for the year ending 2023 immediately as it was not submitted before the due date .
8	Building Stability Certificate received from competent Person for New Registration of Factories	NA
9	Whether weekly off given to Regular / contract workers	Yes
10	Information of accidents and dangerous occurrences as per section 88 and 88-A to the Inspectorate in Form 18 /18-A	Yes

11	Whether a report in form No.19 sent to the Director of Factories in respect of any occupational diseases detected (as mentioned in third schedule of section 89)	Yes
	Chemical Orders	
Sl.No	**Observations**	**Status**
1.1	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure relief system / rupture disk	Yes
1.2	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Pressure Gauges	Yes
1.3	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Emergency shut off system	Yes
1.4	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Dump Tank	Yes
1.5	Whether the following safety systems are provided to chemical storage vessels / tanks / reactors Bundwall	Yes
2	Sensors with alarm system are provided for detection of leakage of chemicals	Yes
3	Safe Operating Procedures (SOP) for carrying all hazardous operations are prepared / displayed at all work areas	Yes
4	Has the management prepared on-site emergency plan as per the MSIHC Rules, 1989	Yes
5	Whether mock drills conducted as per on-site emergency plan	Yes
6	Technique adopted to assess the hazards (i) Risk Assessment report (ii) Hazop study report	Yes
7	Whether Safety audit report required as per MSIHC Rules, 1989 Submitted to the Director of Factories?	NA
8	Disclosure of information regarding hazards / dangers including health hazards from design stage to disposal and measures taken to overcome such hazards arising from the exposure to or handling of the material or substances in the manufacturing process, to the workers. To the chief inspector of factories and local authority before commencement of manufacturing process and also subsequently whenever there is change in the process as per the section 41-B /Section 87 and rule 95 and Sch-XV	Yes
9	Precautions against ignition a) Flame proof electrical fittings in areas of risk b) Effective measures for prevention of accumulation of static charge c) Workers shoes without iron or steel nails to cause friction d) Prohibition of smoking	NA
10	Whether Nitrogen blanketing provided to Centrifuge?	NA

11	Whether Drier/Ovens examined by responsible person designated by Occupier or Manager?	NA
12	Whether reaction vessel examined by competent person?	Yes

Special Standard Order

Sl.No	Observations	Status
1	Whether the following safety systems are provided to Ammonia receiver tank ?	NA
2	Whether the following safety systems are provided to Chlorine tonners ?	NA
3	Whether reverse horn provided to Fork lift ?	NA
4	Whether the following safety systems are followed in welding area?	NA
5	Whether thermal lagging provided to the exhaust pipe of Generator?	NA
6	Whether the following safety systems are followed in Electroplating area?	NA
7	Whether the medical examination of all the workers engaged in Stone crushing process carried out?	NA
8	Whether the following safety systems are followed in Transformer testing area?	NA
9	Whether the medical examination of all the workers engaged in Ginning process carried out?	NA
10	Whether the following safety systems are followed in Induction furnace area?	NA
11	Whether the medical examination of all the workers engaged in Soldering process carried out?	NA
12	Whether mock drill conducted or not?	NA
13	Whether the following safety systems are followed in LPG area?	NA
14	Whether the medical examination of all the workers engaged in Pesticide/Insecticide process carried out?	NA

(G.Nehru)
Deputy Chief Inspector of Factories,Nizamabad,
Telangana

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Annexure 9:

HAZOP (Hazard and Operability Study)	SIGACHI Experience Excellence..

Record No:(OHSR-I)

A HAZOP (Hazard and Operability Study) for Microcrystalline cellulose (MCC) manufacturing and spray drying involves systematically examining the process to identify potential deviations from design intent, and their causes and consequences. MCC is typically produced through hydrolysis of alpha-cellulose (often from wood pulp), followed by separation, purification, drying (e.g., spray drying), and milling.

HAZOP Worksheet for MCC Manufacturing, Drying and Packing Process

1. Process Overview
Key steps:

1. **Hydrolysis of Cellulose**: Wood pulp (alpha cellulose) is treated with mineral acid (typically hydrochloric acid)
2. **Neutralization, Washing and Filtration:** Acid is neutralized and removed to produce wet cake.
3. **Drying:** Wet cake is dried by using Spray Dryer or Fluid Bed Dryer or Spin Flash Dryer depending on grade of material to be prepared.
4. **Milling and Sieving:** Final size reduction and classification.
5. **Collection and packaging of MCC**

Nodes:

Node 1: Acid Hydrolysis Reactor
Node 2: Neutralization and Washing
Node 3: Spray Dryer
Node 4: Fluid Bed Dryer
Node 5: Spin Flash Dryer
Node 6: Spray Dried Powder Collection, Sieving and Packaging
Node 7: FBD Drying, Dried Material Milling, Sieving and Packaging
Node 8: SFD Dried Material Milling, Sieving and Packaging

2. HAZOP Nodes and Parameters
We'll divide the process into **nodes** and then apply **guide words** (No, More, Less, As Well As, Reverse, etc.) to each process parameter to identify possible deviations.

Node 1: Acid Hydrolysis Reactor

Parameter	Guide Word (Deviation)	Possible Cause	Consequences	Safeguard / Recommendation
Digestion	No Reaction	Acid not added	Unreacted cellulose, production loss	Acid flowmeter, pH monitoring
	Excess Acid	Valve malfunction, operator error	Over-hydrolysis, degradation of cellulose	Acid concentration analyses, Glass Lined Reactors
Flow	No flow	Pump failure, valve closed	Incomplete reaction, batch loss	Flow sensors, interlocks
	More	Valve stuck open, wrong setpoint	Over-acidification → excess corrosion	Acid flow meters, pH monitoring, Glass Lined Reactors
Temperature	High temperature	Temperature control failure	Degradation of cellulose, pressure rise	Temperature alarms, cooling
	High Temperature	Exothermic reaction, cooling failure	Decomposition,	Temperature control, cooling jackets

HAZOP (Hazard and Operability Study)	

Record No:(OHSR-I)

Parameter	Guide Word (Deviation)	Possible Cause	Consequences	Safeguard / Recommendation
	High Temp.	Faulty control system	Over-hydrolysis → degraded product	Temperature interlocks, alarms
	Low Temperature	Heater failure, control issue	Incomplete hydrolysis	Ensure PID loop control, manual override
	Low Temperature	Insufficient heating	Incomplete hydrolysis	Heating system with feedback control Check heater calibration Emergency vent, high-temp alarm
pH	Low pH	Excess acid addition	Corrosion, poor-quality MCC	pH monitoring, dosing control
Pressure	More	Blocked vent, overcharging	Vessel rupture risk	Pressure relief valve (PRV), rupture disc
Agitation	No (Failure)	Motor failure	Poor reaction, hotspots	Agitator motor interlock, redundancy

Node 2: Neutralization and Washing

Parameter	Guide Word (Deviation)	Possible Cause	Consequence	Safeguard / Recommendation
pH	More (High)	Excess base addition	Alkaline product, ineffective wash	Inline pH sensors, auto-dosing control
Flow (water)	No	Pump failure, blocked line	Poor removal of residual acid	Flow meters, backup pump
	Less	Acid traces, unsafe product	Insufficient water, time	pH monitoring of filtrate
	High	Rupture of filter, operator hazard	Filter blockage	Pressure relief valve, alarms
Time	Less	Operator error	Incomplete washing	SOPs, batch control systems

Node 3: Spray Dryer

Parameter	Guide Word (Deviation)	Possible Cause	Consequences	Safeguard / Recommendation
Flow	No feed	Pump trip, clog in feed line	Dryer operates dry → fire/explosion risk	Flow interlocks, level sensors
Temperature	High temp	Heater malfunction, poor feedback	Fire, thermal degradation, explosion risk	Temperature alarms/shutdown
Pressure	High pressure	Blocked exhaust or filter clog	Equipment rupture, operator injury	Pressure relief valves
Product	Too wet	Low drying temp, high feed rate	Off-spec MCC, microbial growth risk	Moisture sensors, QA testing
	Too dry/burned	Overheating, low feed rate	Product degradation, fire hazard	Exhaust gas monitoring, control

HAZOP (Hazard and Operability Study)	SIGACHI Experience Excellence

Record No:(OHSR-I)

Parameter	Guide Word (Deviation)	Possible Cause	Consequences	Safeguard / Recommendation
Dust	High dust	Poor cyclone separation	Dust explosion, environmental issues	Dust Extruder with water scrubber provided, Vapor pressure

Node 4: Fluid Bed Dryer

Parameter	Guide Word (Deviation)	Possible Cause	Consequence	Safeguard / Recommendation
Temperature	More	Heater fault, sensor drift	Fire/explosion risk (dust cloud)	High-temp interlock, explosion venting
Airflow	No	Blower failure, duct blockage	Poor drying, agglomeration	Blower alarms, DP monitoring, backup blower
Material feed	More	Operator error, feeder malfunction	Overloading → poor drying or fire risk	Feed rate control, load cell, level sensors
Dust generation	More	Fine particles + static electricity	Explosion hazard	Dust collection, grounding, spark detection
Residence time	Less	Conveyor malfunction	Incomplete drying → microbial risk	Moisture sensor, residence time control

Node 5: Spin Flash Dryer

Parameter	Guide Word (Deviation)	Possible Cause	Consequence	Safeguard / Recommendation
No	No Drying	No hot air, feeder blockage	Wet product, clumping, product rejection	Temp sensors, feeder torque monitor, Low-temp interlock, regular maintenance
Heating	Overheating	Thermostat failure, excessive temp	Cellulose decomposition, fire risk	Temp cutoff, fire suppression system, Thermal camera, high-temp shutdown loop
	Underheating	Heater failure	Incomplete drying, poor flowability	Temperature control system Add backup heating system
Air Flow	High Air Flow	Blower malfunction	Product blown out with air, loss, dusting	Cyclone separator, bag filters Airflow monitor and alarm
	Low Air Flow	Fan failure	Poor drying, product agglomeration	Airflow sensor, PID control Fan redundancy, pressure switch
Dust	Dust Cloud	Fine particles escape system	Dust explosion risk	Explosion venting, inert gas purging, Implement ATEX-rated equipment

Node 6: Spray Dried Powder Collection, Sieving and Packaging

Parameter	Guide Word (Deviation)	Possible Cause	Consequences	Safeguard / Recommendation
Flow	Blockage	MCC bridging, static build-up	Production delay, risk of fire	Vibration pads, level sensors, Implement anti-bridging devices
Static	High static	Poor grounding	Dust explosion	Double Grounding, Checking

HAZOP (Hazard and Operability Study)	

Record No:(OHSR-I)

Parameter	Guide Word (Deviation)	Possible Cause	Consequences	Safeguard / Recommendation
Contamination	Product contaminated	Ingress of foreign material	Batch rejection, regulatory issues	HEPA filters, closed system, Improve material handling

Node 7: FBD Drying, Dried Material Milling, Sieving and Packaging

Parameter	Guide Word (Deviation)	Possible Cause	Consequence	Safeguard / Recommendation
Particle size	Less (Finer)	Overmilling	Dust explosion risk	Particle size analyzer, dust control
Feed rate	More	Operator error	Overload → mechanical failure	Feed interlock, load control
Screen integrity	No (Broken)	Wear & tear	Contamination of batch	Routine inspection, metal detection

Node 8: SFD Dried Material Milling, Sieving and Packaging

Parameter	Guide Word (Deviation)	Possible Cause	Consequence	Safeguard / Recommendation
More	Overfilling	Spillage, dust hazard	Level sensor failure	Level alarms, interlocks, Add redundant level sensors
Reverse	Backflow of Dust	Contamination, dust hazard	Poor venting design	Bag filter and airlock system, Improve venting, install check valves
Other Than	Wrong Material	Product contamination, batch rejection	Incorrect loading	Material labeling and tracking, Barcode-based loading system

Key Safety and Environmental Considerations

- MCC dust is **combustible** – a key hazard in spray drying and handling.
- Acid use during hydrolysis poses **corrosive and toxic exposure risks**.
- Spray dryers may become **ignition sources** due to high temperatures and dust accumulation.

Key Hazards Identified

- **Dust Explosion:** Especially in drying and milling stages. MCC is combustible in fine powder form.
- **Acid Exposure/Corrosion:** During hydrolysis.
- **Overheating or Fire:** In fluid bed dryer due to high temp or poor airflow.
- **Mechanical Failure:** In filters, dryers, mills.

Key Hazards and Safety Measures

Hazard	Control Measures
Acid Handling	PPE, closed transfer system, eyewash/shower units
High Temperature Dryer	Thermal insulation, fire detection system
Dust Explosion	ATEX-compliant dryer, grounding, dust collectors
Chemical Exposure	MSDS, training, exhaust ventilation

HAZOP (Hazard and Operability Study)	

Record No:(OHSR-I)

General Recommendations:

1. **Implement ATEX-compliant design** in spray dryer area (intrinsically safe equipment, explosion relief panels).
2. **Maintain robust CIP (Clean-in-Place)** system to prevent microbial growth and product contamination.
3. **Ensure redundancy** in critical sensors (temperature, flow, pressure).
4. **Use inerting (e.g., nitrogen) in drying process** if explosion risk is significant.
5. **Conduct regular dust hazard analysis (DHA)** in line with NFPA 652.

Typical Safeguards:

- **Explosion Protection:** ATEX-rated equipment, explosion vents, dust collection systems.
- **Interlocks & Alarms:** On temperature, airflow, pressure.
- **Material Handling Controls:** Grounding, anti-static systems.
- **Instrumentation:** Moisture analyzers, pH meters, particle size sensors.
- **Procedures:** Standard Operating Procedures (SOPs), maintenance checks, emergency response training.

Recommendations Summary:

- **Automation:** Implement more automated controls to minimize human error, especially in acid dosing and temperature control.
- **Redundancy:** Use redundant sensors and pumps for critical utilities.
- **Explosion Protection:** Ensure compliance with ATEX or NFPA standards for dust handling areas.
- **Preventive Maintenance:** Establish a predictive maintenance system for pumps, dryers, and fans.
- **Emergency Preparedness:** Conduct regular safety drills and ensure emergency equipment is operational.

Annexure 10:

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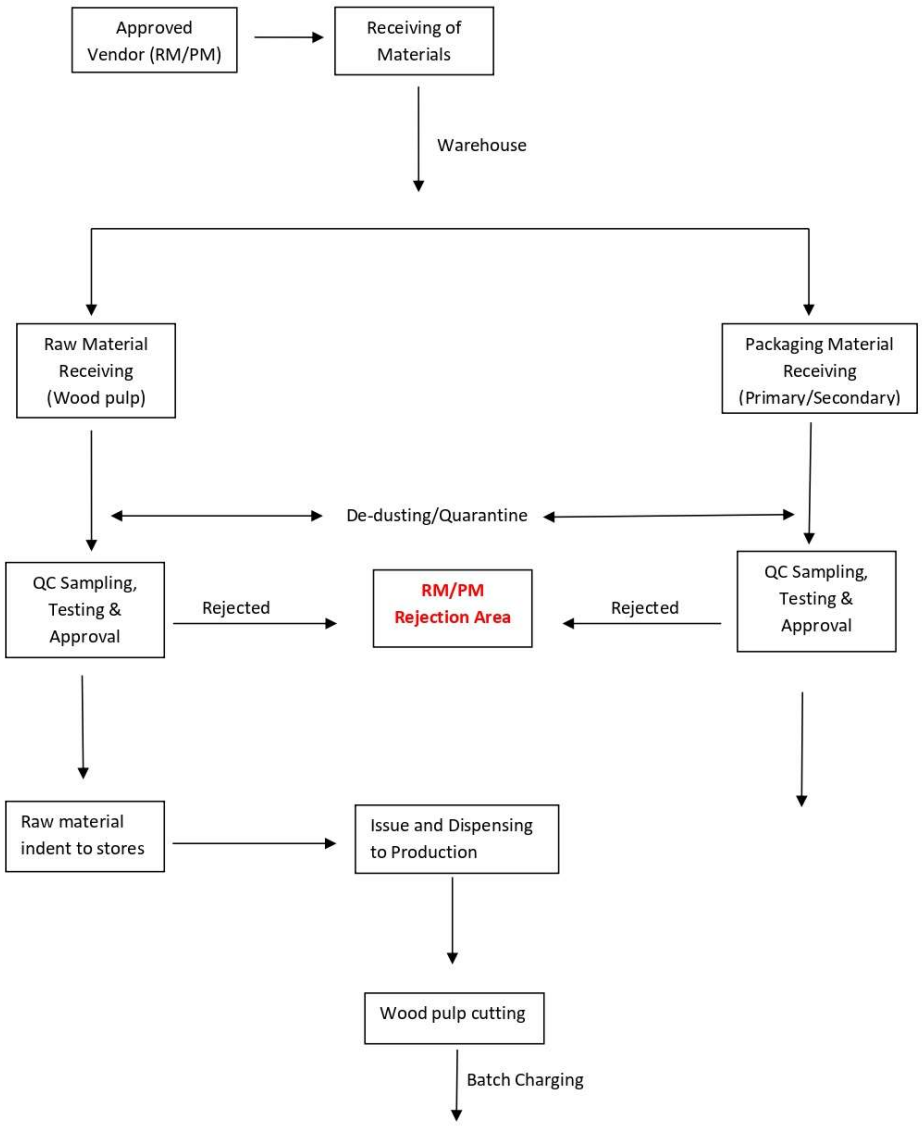
MICROCRYSTALLINE CELLULOSE (MCC) PROCESS FLOW CHART



Corporate Office: SIGACHI INDUSTRIES LIMITED
Plot No. G57/2, Industrial Park, Sultanpur, Hyderabad, Sangareddy (Dist), Telangana - 502319.
Tel No.: +91-8455-242055 / 56 / 57 URL: www.sigachi.com

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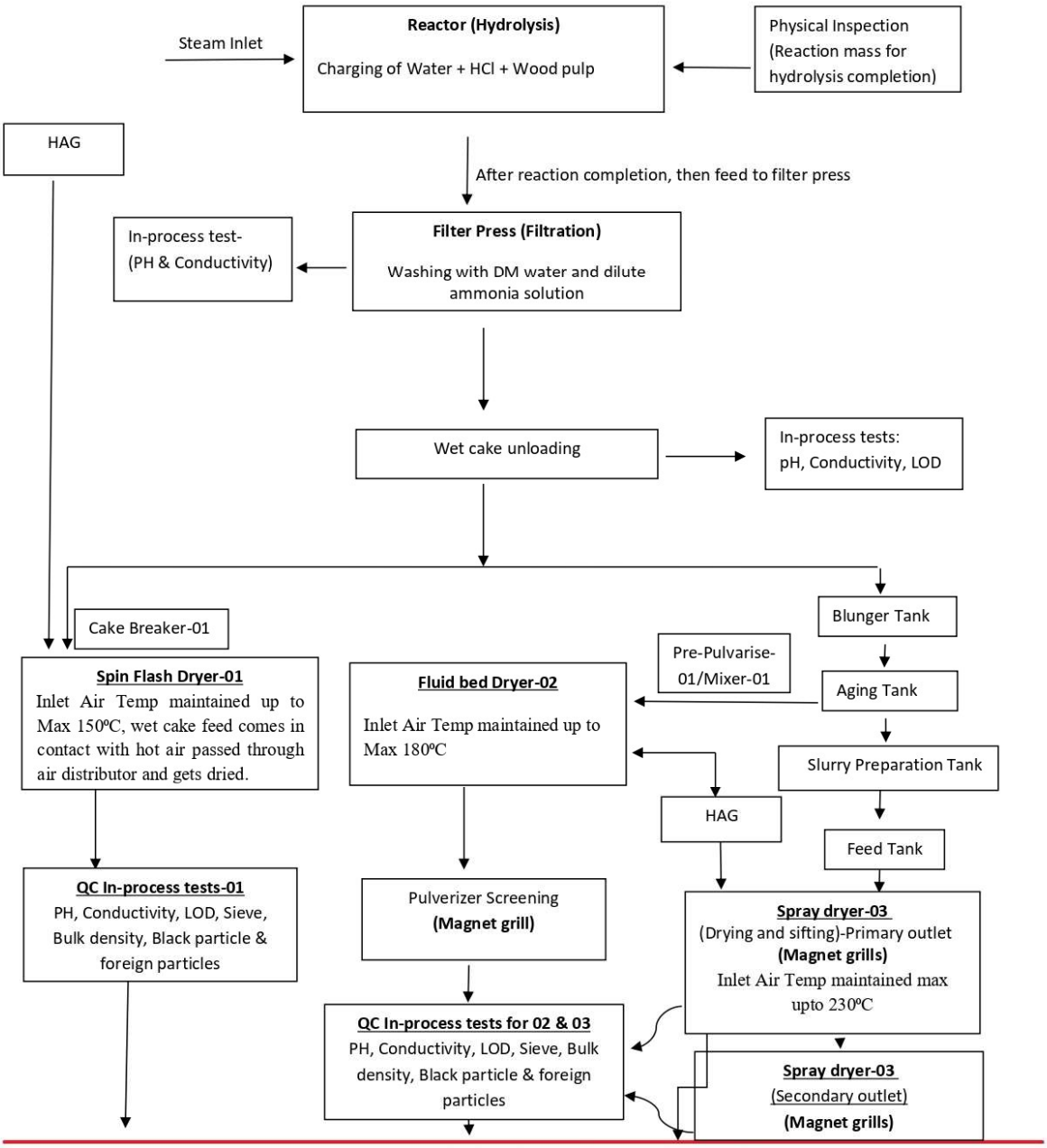

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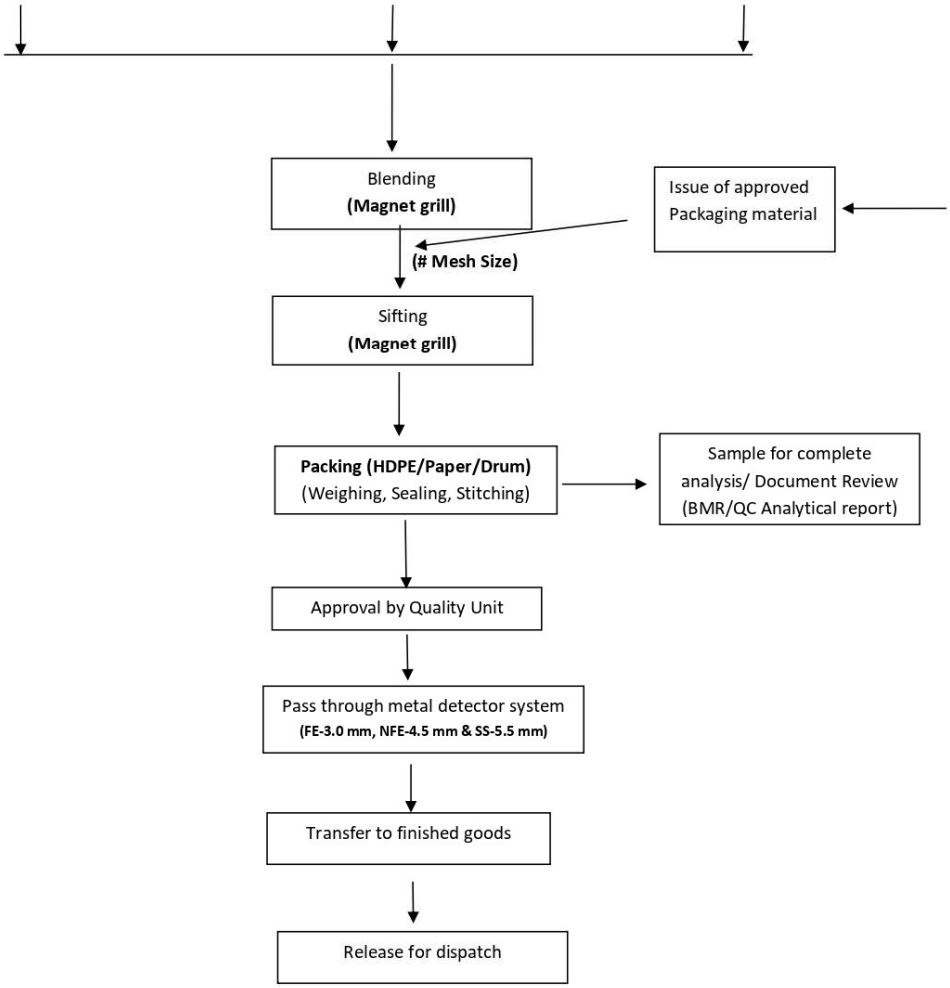

For Sigachi Industries Ltd.,

03/04/2025.

Md Rafiq Patel
AGM - QA

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Annexure 11:

SIGACHI INDUSTRIES LIMITED

Plot No.20,Phase -1,IDA,Pashammailaram,Isnapur-502 307,Sangareddy(Dist) T.S.

I.	BATCHES			MCC PRODUCTION REPORT		Dt 28.06.25		
II.	PRODUCTION / STOCKS :							
Sl.	Description			Today	Todate		Today	Todate
						SD	3588	97882
1	Opening balance -kgs			127001	115061	Vibro	11842	303265
2	Add. Production -Kgs			21260	550740	SFD	3845	118622
3	TOTAL -Kgs			148261	665801	TOTAL	19275	519769
4	Less.Trans To FGG(sale)-Kgs			19670	537210	Knife Mill	750	3830
5	Closing Balance			128591	128591			
6	Inprocess Stock			128591	128591			

III.A FINISHED GOODS STOCK -in Kgs — D-3:--10770 Kgs

Sl. No.	Opening Balance	Transfer Today	Transfer Todate	Total	Dispatch Today	Dispatch Todate	Closing Balance
1	58850	18200	522285	581135	20785	400705	180430
2	2485	1470	14925	17410	4995	15630	1780
Total:	61335	19670	537210	598545	25780	416335	182210
	FORM-V DESPATCH						
1	11770	0	420	12190	0	1420	10770.00

SEMI FINISH GOODS STOCKS

S.No	Description	Opening Balance	Reciept Today	Reciept Todate	Total	DISPATCH Today	DISPATCH Todate	Closing Balance
1	MCCP-Semmi Proces	6000	0	0	6000	1500	1595	4405

DAHEJ MATERIAL

S.No	Description	Opening Balance	Reciept Today	Reciept Todate	Total	DISPATCH Today	DISPATCH Todate	Closing Balance	Invoice No
1	MCC - 102	0	0	82560	0	0	82560	0	25110080 ,81,84,85,

TRADING MATERIAL

S.No	Description	Opening Balance	Reciept Today	Reciept Todate	Total	DISPATCH Today	DISPATCH Todate	Closing Balance	Remark
1	MAGNESIUM STEAR	2694	0	0	2694	0	20	2674	
2	CROSCARMELLOSE	2125	0	0	2125	0	10	2115	
3	CROSCARMELLOSE	2484	0	0	2484	0	0	2484	
4	SODIUM STARCH GI	5820	0	3000	8820	3000	3000	5820	
5	TALC USP	255	0	0	255	0	0	255	
6	SODIUM STARCH GI	2980	0	0	2980	0	20	2960	
7	LANSOPRAZOLE	8	0	0	8	0	0	8	
8	SODIUM STEARYL F	229	0	0	229	0	0	229	
9	DI-CALCIUM PHOSP	3995	0	0	3995	0	0	3995	
10	DI-CALCIUM PHOSP	15	0	0	15	0	0	15	
11	MAIZE STARCH	175	0	0	175	0	0	175	
12	ALU ALU 0 204 MM	987.95	0	0	987.95	0	0	987.95	

RAW MATERIAL / PACKING MATERIAL / FUEL --- CONSUMPTION / STOCKS : D-3 -

Sl.	Description	Opening	Reciept	Total	Consumption	Closing

No.		Balance	Today	Todate	Total	Today	Todate	Balance	
A.	**RAW MATERIAL**								
	WOOD PULP in Kgs								
1	SAPPI	649177	0	269779	918956	9600	193639	725317	31.3
2	CELLUFLEX	119537	0	0	119537	498	26082	93455	4.2
3	ALABAMA RIVER	7276	0	0	7276	750	6818	458	1.1
4	RIAU	138644	0	60300	198944	7350	94991	103953	15.4
5	BILLERUD NBSK	0	0	0	0	0	0	0	0.0
6	TEL PELLITA	100487	0	213950	314437	2988	34790	279647	5.6
7	RAYONIER	4917	0	0	4917	0	4917	0	0.8
8	BIOTEK PULP	444679	0	157373	602052	1992	161306	440746	26.1
9	BSP-Komi	0	0	95811	95811	618	95811	0	15.5
	TOTAL	1464717	0	797213	2261930	23796	618354	1643576	100.0

Sl.	Description	Opening	Reciept From Harihara		Total	Consumption		Closing	
No.		Balance	Today	Todate		Today	Todate	Balance	
A.	**IN-PLANT**								
	WOOD PULP in Kgs								
1	SAPPI	100040		129362	229402	9600	193639	35763	
2	CELLUFLEX	95232	0	9920	105152	498	26082	79070	
3	ALABAMA RIVER	0	0	7276	7276	750	6818	458	
4	RIAU	0	4032	96488	96488	7350	94991	1497	
5	BILLERUD NBSK	0	0	0	0	0	0	0	
6	TEL PELLITA	0	3920	37485	37485	2988	34790	2695	
7	RAYONIER	0	0	4917	4917	0	4917	0	
8	BIOTEK PULP	213792	0	13056	226848	1992	161306	65542	
10	BSP-Komi	0	0	95811	95811	618	95811	0	
	TOTAL	409064	7952	394315	803379	23796	618354	185025	

B).WOOD PULP AT HARI HARA GODOWN & SHANTHI SWITCH GEAR GODOWN

Sl.	Description	Opening	Reciept		Total	Transfer to factory		Closing	
No.		Balance	Today	Todate		Today	Todate	Balance	
A.	**SHANTHI SWITCH GEAR G**								
	WOOD PULP in Kgs								
1	SAPPI	359904	0	49368	409272	0	80162	329110	
2	CELLUFLEX	24305	0	0	24305	0	9920	14385	
3	ALABAMA RIVER	7276	0	0	7276	0	7276	0	
4	RIAU	32256	0	0	32256	0	32256	0	
5	BILLERUD NBSK	0	0	0	0	0	0	0	
6	TEL PELLITA	0	0	0	0	0	0	0	
7	RAYONIER	4917	0	0	4917	0	4917	0	
8	BIOTEK PULP	127296	0	0	127296	0	13056	114240	
10	BSP-Komi	0	0	95811	95811	0	95811	0	
	TOTAL	555954	0	145179	701133	0	243398	457735	

Sl.	Description	Opening	Reciept		Total	Transfer to factory		Closing	
No.		Balance	Today	Todate		Today	Todate	Balance	
A.	**HARIHARA GODOWN**								
	WOOD PULP in Kgs								
1	SAPPI	189233	0	220411	409644	0	49200	360444	
2	CELLUFLEX	0	0	0	0	0	0	0	
3	ALABAMA RIVER	0	0	0	0	0	0	0	
4	RIAU	106388	0	60300	166688	4032	64232	102456	
5	BILLERUD NBSK	0	0	0	0	0	0	0	

6	TEL PELLITA	100487	0	213950	314437	3920	37485	276952	
7	RAYONIER	0	0	0	0	0	0	0	
8	BIOTEK PULP	103591	0	157373	260964	0	0	260964	
10	BSP-Komi	0	0	0	0	0	0	0	
	TOTAL	396108	0	494661	890769	7952	150917	1000816	
# WOOD PULP STOCKS MENTIONED SEPARATELY PLANT AND HARI HARA AND SHANTHI SWITCH GEAR GODO									
1	SODIUM CMC(L. visc	0	0	0	0	0	0	0	
2	SODIUM CMC(1500 c	0	0	0	0	0	0	0	
3	SODIUM CMC(3000 c	2875	0	0	2875	0	0	2875	
4	SODIUM CMC(M. visc	3635	0	2000	5635	0	785	4850	
5	LIME	300	0	25000	25300	550	7700	17600	
6	AMMONIA GAS Kgs	300	0	600	900	20	750	150	
7	HCL Kgs	16885	0	24550	41435	1458	26590	14845	
8	CausticSodaFlakes	1295	0	3000	4295	125	675	3620	
9	Sodium Chlorite	1718	0	0	1718	22	590	1128	
10	Hydrogen Peroxide	350	0	0	350	0	50	300	
11	Coal Additive	1400	0	0	1400	0	400	1000	

* Woodpulp consumption as per lod.

No.	Description	UM	Opening balance	Receipt Today	Receipt Todate	.	Consumption Today	Consumption Todate	Closing Balance
B.	**Packing Material**								
1	PAPER BAG MEGL	Nos.	6570	0	0	6570	52	52	6518
2	Paper Bag Stargel	Nos.	2815	0	0	2815	0	150	2665
3	Paper Bag Hilose (	Nos.	5410	0	0	5410	0	0	5410
4	Paper Bag Puretalc	Nos.	4434	0	0	4434	0	0	4434
5	Paper Bag EcoCel	Nos.	2013	0	0	2013	0	0	2013
6	Paper bag ACEFIBI	Nos.	6200	0	0	6200	0	0	6200
7	NEUTRAL BAGS	Nos.	8900	0	0	8900	0	400	8500
8	Paper Bag Plain 20	Nos.	6811	0	0	6811	0	2400	4411
9	GLOCEL PAPER B	Nos.	2550	0	0	2550	0	0	2550
10	HICEL P.BAG 3 YE	Nos.	12775	0	0	12775	0	75	12700
11	New HICEL Paper E	Nos.	7780	0	5560	13340	0	2000	11340
12	HICEL CMC PAPEI	Nos.	7735	0	0	7735	0	250	7485
13	New ACECEL Pape	Nos.	6924	0	10617	17541	300	12950	4591
14	ACECEL P.B.3YEA	Nos.	6576	0	0	6576	0	0	6576
15	HICEL HDPE BAG	Nos.	6380	0	0	6380	200	3940	2440
16	HICEL BAGS 03 YE	NOS.	5167	0	0	5167	0	500	4667
17	HDPE Bags CMC	Nos.	3480	0	0	3480	0	32	3448
18	HICEL-F BAGS 05	Nos.	1110	0	0	1110	0	0	1110
19	ACECEL HDPE BA	Nos.	1680	0	5200	6880	300	2560	4320
20	ACECEL BAGS 03	Nos.	7824	0	0	7824	0	220	7604
21	ACECEL fssai HDP	Nos.	1250	0	1750	3000	0	0	3000
22	ACE FIBER fssai H	Nos.	3796	0	0	3796	0	0	3796
23	FAC COATCEL Ba	Nos.	1376	0	0	1376	360	1061	315
24	FAC Alpha Cellulos	Nos.	2600	0	0	2600	0	0	2600
25	GLOCEL HDPE BA	Nos.	2000	0	0	2000	0	0	2000
26	Polythene Liner	Nos.	89231	0	0	89231	800	25900	63331
27	Fibre Drum 25 kgca	Nos.	12	0	0	12	0	0	12
28	Fibre Drum 20 kgca	Nos.	241	0	508	749	0	400	349
29	HDPE DRUM 50 LT	Nos.	1005	0	0	1005	0	0	1005

30	HDPE DRUM 120 L	Nos.	9	0	0	9	0	0	9
31	PLASTIC PALLETS	Nos.	450	400	900	1350	120	670	680
C.	FUEL								
1	COAL G7 RND	MT.	0	0	0	0	0	0	0
2	COAL CC/ROM	MT.	786.05	0.0	238.5	1024.55	13	364	660.55
3	IMPORT COAL	MT.	0	0	0	0	0	0	0
4	BRIQUETTES	MT.	0	0	0	0	0	0	0
5	HSD	Ltrs.	1830	0	1200	3030	10	965	2065

A.) POWER :

Sl. No.	Description	UM.	CONSUMPTION FOR 01.06.25 TO Till now				Remarks		
		V.	MCC		Knife Mill		TOTAL		
			TODAY	TODATE	TODAY	TODATE	TODAY	TODATE	
1	Power (TSSPDCL)	KVAH	10202	280250	469	3099	10671	283349	
2	DG SET		15	2200	0	0	15	2200	
3	TOTAL		10217	282450	469	3099	10686	285549	
4	CONSUMED	PER TON	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
5	Power Factor	---	0.972	0.974	0.961	0.902			
6	Power Failure	HRS	0.0	0.0			MD	491.90	

B.) D.G. SETS PERFORMANCE :

Sl. No.	Description	DG SET-1	8252.6	8252.6	DG SET-2	12041.0	14241.0
		TO DAY	TO DATE		TO DAY	TO DATE	
1	Running Hours	0	0		0.1	6.9	
2	HSD Consumption	0	0		10	555	
3	HSD CONS/HRS.	#DIV/0!	#DIV/0!		100.00	80.43	
4	ENERGY GEN	0	0		15	2200	
5	KWH READING	0	0		0	0	
		#DIV/0!	#DIV/0!		1.50	3.96	

				AFTER VIBRO					
		Today	Todate		Today	Todate	water consumption	Today	Todate
1	SPD	3565	97882	Vibro-1	2310	62015	1.RO(KL.)	240	6376
2	SFD	3845	118622	Vibro-2	2350	62680	2.DM plant regenerati	1	2
3	FBD-1	1926	52048	Vibro-3	2406	61336	3.Raw water	0	330
4	FBD-2	2320	62609	Vibro-4	4776	117234			
5	FBD-3	2325	62554						
6	FBD-4	3625	97193						
7	FBD-5	1770	52110						
	Total	19376	543018		11842	303265			

DISPATCH DETAILS TODAY

S.No	PARTY NAME	Qty. Kgs	UOM	Date	Inv. No	Item
1	EPIGRAL LIMITED	4995	333X15Kgs	28.06.2025	25120376	FAC
2	Optimus Pharma Pvt Ltd	200	8X25Kgs	28.06.2025	25120377	HICEL-90M
3	Vigot Foods Pvt Ltd	100	4X25Kgs	28.06.2025	25120378	Hicel MCG-581
4	Prakruti Products Pvt Ltd	450	18X25Kgs	28.06.2025	25120379	HICEL LP200
5	FTGEL HEALTHCARE PRIVATE LIMITE	25	1X25Kgs	28.06.2025	25120380	ACECEL-101
6	Sigachi US Inc	20000	1000X20Kgs	28.06.2025	25110110	ACECEL-102
7	Sigachi US Inc	10	1X10Kgs	28.06.2025	25130005	ACEFIBRE CF90(SAMPLE
	FAC	4995				
	MCC	20785				
	TOTAL	25780				

Sweeping material Generation (in kgs.)	Today	Todate
	0	5418

Prepared By	DGM-Production	VP

Annexure 12:

Technical Incident Report: MCC Dust Explosion at Sigachi, Pasamailaram

Prepared by: Amit Raj Sinha, MD & CEO, Sigachi Industries Ltd.

Date of Incident: 30 June 2025

Time: ~09:30 AM IST
Location: Drying Block, Pasamailaram, Telangana

Employee Breakup:

Row Labels	Permanent Staff	On Contract	Present on 30 Jun 25
Active	27	34	61
Deceased	16	23	39
Injured	17	17	34
Missing	9	0	9
Total on 30 Jun 25	**69**	**74**	**143**
Not on Duty/Absent	45	36	81
Grand Total	**114**	**110**	**224**

1. Executive Summary

On the morning of June 30, 2025, at approximately 09:30 AM IST, an explosion occurred in the Drying Block of Sigachi Industries, Pasamailaram facility, tragically resulting in loss of life and significant structural damage. The incident occurred during routine processing of Microcrystalline Cellulose (MCC) — a pharmaceutical and food-grade additive widely accepted as safe (GRAS).

While investigations are ongoing, preliminary assessments indicate the explosion was localized to the Spray Dryer/Flash Dryer section and was likely caused by airborne MCC dust combined with an ignition source under confined drying conditions. The reactor section remained unaffected.

In over three and a half decades of operations, Sigachi Industries has maintained an unblemished record with no significant safety incidents. This tragic event underscores the evolving nature of industrial risks, particularly those inherent to the processing of fine organic powders.

2. Product Context – MCC (Microcrystalline Cellulose)

Property	Details
Physical Form	White, odourless powder (20–200 micron)
Manufacturing Process	Acid hydrolysis of cellulose, followed by drying
Explosion Hazard Classification	ST-1 Dust (Moderate Explosion Risk)
Minimum Explosive Concentration	~40–150 g/m³
Minimum Ignition Energy	~25 mJ
Minimum Ignition Temp (cloud)	~470°C

Though MCC is widely recognized as safe in its end-use, its manufacturing under specific environmental and process conditions may carry combustion or explosion risks due to fine particulate nature.

3. Incident Timeline

Time	Event
09:15 AM	Operations reported stable; dryers and MCC powder processing in routine use
09:30 AM	Sudden explosion with flame venting and structural collapse observed

The explosion appears to have disturbed settled dust near adjacent operations (blending and packing), which may have led to a rapid secondary deflagration.

4. Preliminary Root Cause Observations

Based on initial reviews, the following factors are under consideration:

- **Suspended Dust Concentration**: Accumulated MCC dust, a normal byproduct of drying, may have reached critical levels under constrained airflow or internal humidity.
- **Ignition Possibility**: Potential for mechanical spark, bearing heat, or static charge discharge in a high-dust, oxygen-rich environment.
- **Cascade Effect**: A primary deflagration might have triggered a secondary, more intense event by agitating settled powder across nearby zones.

While Sigachi followed routine operating and maintenance protocols, this event has highlighted areas where process-level risk can exceed historical expectations, especially in confined dryer setups.

5. Safety Systems – Identified Gaps

As part of our introspective safety review, the following areas have been identified for strengthening:

Area	Observation
Pneumatic Conveying	Airflow pressures may not have been optimized for dust removal
Grounding & Bonding	Potential for static buildup in ducts due to insufficient bonding
Explosion Safeguards	Older lines lacked advanced detection or suppression systems
Operator Awareness	Overfamiliarity with dust exposure may have dulled risk sensitivity

While none of these alone suggest systemic negligence, together they point to the need for modernization and heightened hazard awareness in dusty processing environments.

6. Key Learnings

This incident has brought to light essential learnings for Sigachi and the broader industry:

- **Safe Products Can Pose Process Hazards**: Even GRAS-classified materials like MCC can become explosive under airborne conditions in confined, high-temperature equipment.
- **Environmental Factors Matter**: Variations in ambient humidity and powder flow can affect charge accumulation and dust dispersion.
- **Legacy Systems Require Review**: Facilities with a long operational history must evolve in parallel with updated safety standards (e.g., NFPA 654, ATEX).

7. Immediate & Long-Term Action Plan

Sigachi is committed to turning this tragedy into a catalyst for improved safety across all our operations:

Category	Actions
Immediate Investigation	Residue sampling, DCS (control system) data review, CCTV footage analysis
Engineering Upgrades	Install explosion vents, spark detectors, flame arrestors in dryers & ducts
Real-time Monitoring	Dust sensors across MCC lines (as per NFPA/ATEX standards)

Category	Actions
Housekeeping	Introduce "Zero Dust Accumulation" SOPs; deploy industrial vacuums
Static Management	Full electrical bonding and grounding audit across equipment
Operator Training	Refresher certification for all staff on combustible dust hazard response
Third-party Audits	Engage certified safety agencies for annual PSM (Process Safety Mgmt.) audits

8. Conclusion

Sigachi Industries deeply mourns the lives lost in this incident and stands with the families and communities affected. While our operational diligence and history have been strong, this incident has revealed the evolving nature of industrial risk in fine powder processing. We are committed to strengthening our systems through transparent reviews and robust corrective action, in full cooperation with authorities and experts.

Our commitment going forward is to set a new safety benchmark for MCC and similar manufacturing operations — rooted in humility, science, and proactive learning.

Amit Raj Sinha
Managing Director & CEO
Sigachi Industries Ltd.

04 Jul 25

Annexure 13:

Date: 25/07/2025

Statement

My name is Vipul Modi, age - 47
Address: A/52, Dipmangalam Society,
Lane Road, Bharuch.
M. No: 9427130343

I have done B.E. Electrical Engg.
Earlier I have been with M/s. Gujarat Organics Limited. for 14 years in Maintenance Dept. (As a manager) Elect. & Mech.).

I joined Sysnet Instruments Limited, Jhagadia on 21st, May, 2021 as a manager. (Electrical & Mech.)
I have ~~got~~ a team of 5 Electricians. with me
I look after Electrical maintenance of all Electrical equipments, appliances. etc.
I also look after the ~~Sitin~~ Sealing m/cs.
There are Electrical & Mechanical maintenance for the M/c. for Expl: Heating Step, ~~Insulation~~ Cutter is of metal & cutter gets heated for Sealing the LDPE Bags. On this heating step insulation Cover is provided. This cover also gets damage because of the heat & has to be replaced when it is damage

25/07/2025

(8)

Timer Switch ~~also~~ is also PCB Based Circuit & its provided with cut off Relay. It also as to be replaced may be two years or it may go up to more years also.

The pedle is a Solenoid based instrument & the pedle working on phenumatic principle.
On over heating of the strips can ~~[illegible]~~ burn & ~~[illegible]~~ Break. In this Surcumstance the LDPE liner can also burne & get damage.

~~The number of~~
An ~~un~~ experienced operator of Sealing m/c. can works safly without burning the ~~8~~ LDPE liner with only one insulation strip on the conductor a natural of the m/c. But if the operator is un experience the ~~b~~ over heating can happed, In this surcumstance Double insulation strips should be used.

If there is a Air bubble in the insulation strip, ~~heating~~ over heating will occur with the continuse use of heat sealing ~~str~~ conductor strip & also there is a used mechanical imfect on ~~a~~ itmerey sealing hence it may ~~too~~ loose ~~its~~ its property of conducting & its becomes black. In this surcumstance it offers more resistance & get heated ~~early~~, easily. It also breaks mechanically

2
23/05/2025

(2)

We have in our spares the heating strips, insulation strips, pedle.

In Routine maintenance the sealing mk is cleaned by the operators by cloths.

This is my Statement & I given this statement to Mr. Nilesh Uwunde, member of expert Committee appointed by Telangana Govt. for finding the cause of unfortunate incidence of explosion at our Hydarnadabad plant.

CV

25/07/2025

(Vipul Modi)

M.No: 9427130343

Annexure 14:

Analysis of the injuries to dead workers (Based on Post Mortem Reports):

Analyzing the Death of workers had been the most disheartening of the jobs we have performed throughout this investigation. But for finding the cause of initiation of this disastrous accident, it helped immensely.

The basis of the analysis was that the people who were in the center of the explosion and heat of fire would receive the worst of the injuries, and the heat received would be the most humongous by them amongst all.

We analyzed the Post Mortem report of every worker who died and categorized it in the following format.

Sr. No.	Department/ Place of working	Name of the worker	D. No. (Tag)	Whether body identified only after DNA	Burn	Whether body parts were Amputated or burst open due to explosion	Comment
1	Packing	Ramesh Gaud, Helper	D7-42	DNA	100%	----	30-Jun-2025
2	--"--	Siddarth Gauda, Helper	D12-28	DNA	100%	----	2-May-2025
3	--"--	Deepak Kumar, Helper	D14-38	DNA	100%	All Upper & Lower Limbs Traumatically amputed and charred. Chest & abdomen burst open.	15/04/2025
4	--"--	Ms. Laxmi Mukhiya, Operator	D15-13	DNA	100%	Both Upper Limbs missing at shoulder level	
5	--"--	Ramtirth Babulal, Helper	D29-36	----		----	26/05/2025
6	--"--	Chekkan Singh, Helper	D31-45	DNA		Upper Limbs missing above	19-Jun-2025

						shoulder level and Lower Limbs missing below knee level	
7	--"--	Chaitu Batra, Helper	D33-43	DNA		Missing right foot	30/06/2025
8	--"--	Raj Kumar, Helper	D34-29	DNA		Abdomen burst open	2-Jun-2025
9	--"--	Shambhoo Ram, Helper	D35-32	DNA		Fracture of bones of both Upper & Lower Limbs, Pugilistic Attitude	28-Jun-2025
10	--"--	Asim Tudu, Helper	D37-26	DNA		----	08/12/2024
11	--"--	Arif Khan, Helper	D42-34	----		----	28-Jun-2025
12	--"--	Dibakar Basak, Helper	D46-46	----			16/03/2025
13	FBD	Dilip Gosai, Helper	D9-39	DNA			15-Apr-2025
14	--"--	Bacchu Bala Krishna, Sr. Operator	D10-06	DNA	100%		
15	--"--	Jagdish Prasad Patel, Incharge	D13-01	DNA			

16	--"--	Shyam Sundar Tudu, Helper	D19-31	DNA			13-Jun-2025
17	--"--	Marapu Pawan Kumar, DGM (died while discussing with GM)	D20-15	DNA		Traumatic crushing transection of lower half of the body is present diagonally extending from right shoulder to left lower abdomen. Right Upper Limb absent. Absent: Left hand both lower limbs, & lower part of the trunk.	
18	--"--	Dola Govinda Sahoo, Operator	D28-14	----	99%		Hospital death
19	--"--	Atul Kumar, Helper	D36-22	----		Vault of skull burst open. Chest & abdomen burst open. Hands and feet absent.	
20	--"--	Bhimrao Vitthal Khandare, Helper	D38-33	----	80%		Hospital death 28-Jun-2025
21	--"--	Munmun Choudh	D39-09	----			Hospital death

		ary, Sr. Operator					
22	--"--	Jithendra Jagannath Suraj, Helper	D40-40	----			26-May-2025
23	--"--	Prasanth Mahapatra, Helper	D43-30	DNA			Only bones 7-Jun-2025
24	Pulveriser 3	Ram Singh Rajbhar, Sr. Operator	D4-04	----		Traumatic amputation of left hand at the level of middle of left palm	
25	Pulveriser 1	Tarpada Tudu, Helper	D45-35	----			Hospital death 13-Jun-2025
26	Metal Detector	Rajnala Venkat Jagan Mohan, Dy. Manager	D1-05	----			
27	Dispatch Area	Lognath Durai, Assistant	D2-18	----			
28	--"--	Akhil Mothkur, Chemist	D44-12	DNA			Only bones First Floor
29	Day FG Storage Area	Poorna Chandra Sahoo, Helper	D5-44	DNA			30-Jun-2025
30	--"--	Dasari Ramanja	D11-23	DNA			

		neyulu, Helper					
31	--"--	Ajay Mondal, Helper	D16-41	DNA			30-Jun-2025
32	SFD	Chotelal Kole, Helper	D6-25	DNA			
33	--"--	Akhileshwar, Sr. Operator	D41-07	----			
34	Blender 2	Taslimuddin Ansari, Operator	D18-17	DNA		Chest Abdomen burst open. Both Upper & Lower Limbs Traumatically amputed & charred.	
35	Utility DM Plant	Bodigutta Hemasundar, Incharge	D30-03	----	100%		
36	QC Lab	Shubhadeep Sarkar, Helper	D21-21	DNA	100%		First
37	--"--	Ms. Ruksana Khatur, Helper	D22-24	----	45%	Traumatic amputation of Right Lower leg obliqually (below the knee).	First
38	--"--	Ms. Ramla Sri Ramiya, Trainee Chemist	D23-19	----	Burn with inhalational injuries		First 11-Dec-2024

39	--"--	Vajrakeshavulla Rajganga Nageshwar Rao, Assistant Manager	D24-08	----	Burns		First
40	--"--	Gonigan uru Nikhil Kumar Reddy, Executive	D25-10	----	Burns		First
41	--"--	Dosari Sunil Kumar, Chemist	D26-16	----	55%		First
42	--"--	Ms. Polshetty Jaya, Trainee Chemist	D27-20	----	Burns		First 15-May-2025
43	Admin	M E Elangho van, GM	D8-11	DNA	Burns		
44	Paper Cutting Area	Shashib hushan Kumar, Helper	D3-27	----			1-Apr-2025
45	Supervisor Table	Manoj Kumar Rout, Dy. Manager	D17-02	----			
46	Filter Press Area (near DM Tanks)	Naga Paswan, Helper	D32-37	DNA		Body in two parts	First 15-Apr-2025
47	Spray Dryer	Akhilesh Kumar Nishad,					12-Mar-2014

		Sr. Operator					
48	QA	Gundubelli Venkatesh, Sr. Chemist					First
49	QA	Rahul Kumar Sharma, Trainee Chemist					First 26-Dec-2024
50	QA	Silvari Ravi					First 2-Jan-2025
51	Blender 1	Irfan Ansari, Helper					20-Jun-2025
52	Pulveriser 1	Suryanollu Jastin, Helper					28-Jun-2025
53	Packaging	Shivji Kumar, Helper					25-Jun-2025
54	Packaging	Vijay Kumar Nishad, Operator					1-Apr-2022

Most of the workers who died horrifically were newly joined and had only their first half an hour of duty at Sigachi. It was really infuriating about the employment and training policies of the Sigachi. Many of the workers whose date of joining was 30th June had died on the shop floor. How can this happen?

When a worker joins any industry, there is a basic induction and training program w.r.t the production and the basic safety. If considered that the workers had reported for their duties at 9.00 AM which is the General Shift time (as we cannot imagine that these workers were called upon to join in shifts on their very first working day) and the accident had occurred at 9.25 AM. This means that these workers were sent directly on the shop floor bypassing each and every safety protocols including the basics like use of PPEs also.

Most of these first day workers were sent to the Packing room. Given the fact that the bodies of few workers were literally vanished and bodies of many workers working in the packing area were shattered in to pieces, exhibits that the newly joined worker must have been asked to operate the highly risky and hazardous Sealing Machine by the management.

It was very much evident from the interviews we have taken at Sigachi's Jhagadiaya plant that workers were trained like this only, i.e. the fresh workers were asked to operate the Sealing Machine.

The way the bodies of workers strewn working in the packing area, exhibits that the explosion got initiated in the Packing room and a humongous heat got generated in the Packing area only.

The fact that eight bodies got vanished in this area also exhibits that indeed a humongous temperature has got generated in the Packing area only.

The fire remained at the most for 15-20 minutes and there were no major flames seen by anybody that means huge intense heat got generated due to sudden decomposition of the MCC products available and their burning thus.

The burning of trees at a height of more than 20 feet and at a distance of more than 30 feet due to heat of radiation also supports the fact that a humongous heat and heat flux got generated in the Packing area. There was only one source for this much quantum of heat and heat flux to get generated in the Packing area, it was the 17 MT of material MCC present inside of the packing area.

Evidences for generation of huge over pressure in the Packing Area: Fragmented bodies of workers working there. Statements of eye witnesses who lifted the fragmented bodies.

Fact that everything above the Sealing machine area in the Packing room got fragmented and it remained open to sky whereas the rest of the areas were showing presence of the debris.

Evidences for generation of huge heat in the Packing Area: Disappearance or evaporation of eight human bodies falling in this area.

Burnt teeth of one worker as exhibited in a Post Mortem report.

Only bones portion of two workers remaining, rest of the body portion getting evaporated.

Severe burning/ charring of humans, many of them to the extent that the identification could be established only through the DNA tests.

Severe burning of the trees at a height of more than 20 feet and at a distance of more than 30 feet from the packing area.

All this exhibits that there was a generation of a huge heat in the Packing area.

Annexure 15:

Statment (1)

21 Aug 2025.

Name - Golla Naresh (31) Years

⇒ My Residence Adress is Sangareddy - Dist, Kohir (M) Gurujuwada (village) M.No: 9703039690.

⇒ My Education Qualification is MSc (org-chemistry)

⇒ I am working with Sigachi Industries, Pasha mylaram as a chemist since 2024 Feb 2.

⇒ My Job profile is Collection of samples (Personally) by going in the Production down staves and bringing them in the Laboratory and Testing their samples.

we collect samples from different bags of a manifucture and blended bacth when the matireal is collected after blending and Place near the blenders in wereans bags weighing from 25 to 30 Kg.

we are Provided work sheets bacth wise by the Purchase officer.

(2)

as Per the Requirments in the worcksheets and as applicable ~~to~~ as Per our SOP we carryout werious Tests. This Tests Last for 20 mints TO 1:30 hour also.

but most of the Tests our off 20 mints iff the Matireas Passes in our Tests. it will go for Packing other wise it is kept neas the blenders for Re-blending.

in our Laboratory we handle werious equpments for testing and meausuring

we used To experieance vibrations on the first floor this vibrations were becose off opparation off GLR's and filter Press and other equpments Lokated on the first floor After Commi~~ss~~ioning off GLR-5 in the Month off April-2025 This vibraution's incseskd more.

our Diputy manages Mr. Manoj Rout had many Times said that the bulding can callaPs becose of this vibrations

(3)

we had raise this consern of vibrations To our Deparment Head, (QC) mr. Rajashekar Reddy sir. we don't know Reddy sir whether He Raise this concern off vibration of the bulding ~~with the~~ with the TOP Managment or not.

⇒ After March 2025 thair was ~~usge~~ ~~rise~~ a suddenrise in our worck whaile Perfoming Test it is nesseceesy for me. To Remaine Present near the Testing opparatatuss and the samble, But After the Month of March 2025, The worck load was so increased That while the Testing of the sample of one baeth was going on I had To go down for collecting sample of another baeth also heance in was overlaping. actually ~~becose of~~ thair is A Request book in the production near the blender thair is ~~as~~ book for bothe the blender's only one

④

the Request's for sample Testings off bothe the blunder's where Recorded only in one book.

⇒ the work pressour was such a ~~huge~~ Huge that we wear TO collect samples back to back some times it has also happen that while may testing was in progress I had to go down for collection off new samples.

earlyer, we usl TO get some space off Time between two samplings as Production used TO Take Time in betwin TWO batches, they also used TO Take Time in the maintanance of the mationary/ equpments also.

Some Times the worck Load was such a huge that we didn't get time even for rest also.

This all happen after march 2025.

this is my statment and I have given this statment off my own wish and will without any Pressor. to nilesh

(5)

ukunde, member of. Tecnical expert committie of Telangana governament.

Name

G. naresh.

21/08/2025

M.NO: 970 303 9690

Annexure 16:

जबाब — डेट 01/08/2025

मेरा नाम कमला प्रसाद पटेल उम्र 55 वर्ष निवास
H.N. 7-88/113 DN Collony muthangi Pathancheru
Sanga Reddy. T.S.

मेरा पढ़ाई B.S.C (praivate) तक हुआ है।

जून 1994 में मैं सीगाची कम्पनी में आई डी ए पाशा-मैलारम में ज्वाईन किया उसवक्त केवल सीगाची क्लोरो केमीकल था

MCC Product का प्लान्ट का Construction का काम 1994 में मेरे सुपर विजन में शुरू हुआ मई 1995 में Construction Complete होके MCC का प्रोडक्शन शुरू होगया था. उस वक्त FRP Reactor था और FRP का नुच फिल्टर था, सेन्ट्री फयूज था, प्रीफुलराईजर था, FBD था, पुलरवाइजर था, बलेन्डर था, सिफ्टर था काटा मशीन था, सिलाई मशीन था, उस वक्त हमारे पास सिलींग मशीन नही था, हमलोग धागा से बांधते थे. उसके बाद धागे के जगह प्लास्टीक टाई लगाना सुरू किया.

लगभग 2001 में एक एकही FBD से काम चल रहा था, और हीटींग स्टीम से होता था. फिर दुसरा FBD आया और 2003-2004 मे स्प्रेड्राईर आया उस वक्त स्प्रेड्राईर को LDO बर्नर हीटींग से Temprature दिया जाता था।

[signature] 01/08/25

पेज नं 02

सन 2006 में स्प्रेड्राईर को हिट करने के लिए Thermic Fluid Heater लगाया गया।
सन 2014 में SFD आया उस वक्त केवल दो FBD थे।
उस वक्त FAP के दो रियक्टर थे दुसरा FAP रियक्टर 1999 - 2000 में लगाया गया. उस वक्त दो ही पुलवाई थे नं. -1 और नं. 2 दोनों पुलवाईजर SFD के लाउंन में थे उस वक्त हमारे पास केवल एक बलेन्डर था और वह बलेन्डर FBD 5, 3 के पास था. यह सब 2007 तक था सन 2009 - 2010 में नया टेक्नोलोजी के साथ नई वाली मशीनरी लगाई गई ~~हुवाले~~.
30/06/2025 की घटना के पहले मशीनरी की दो स्थीतीयी थी दो स्थीती 2009 - 2010 में थी. पहले वाली मशिनरी इधर से उधर किया गया. HAG का सिस्टम लगभग 2023 - 2024 में आया.

मेरा पद प्रोडक्शन इन्चार्ज का है। मैं रोज सुबह 08:30 - 08:50 के बीच में हाजीर होता हूं। आते ही मैं पुरे प्लान्ट के चारो तरफ बाहर से घुम कर तब मैं प्लान्ट के अन्दर जाता हूँ। उसके बाद सभी मशीन के आपरेटर से बात करता हूँ। मेरा जिम्मेदारी ग्रेड के हीसाब प्रोडक्शन करने के लिए सभी आपरेटरो को हिदायत देता हूं. उसके बाद शाम में 6:30 - 7:00 के बाद घर जाता हूँ।

01/08/25

पेज नं - 03

दिनांक 30/06/2025 सोमवार को रोजाना की तरह मैं सुबह 08:20 को आया ~~उस~~ आते ही मैंने गेट पर रखे बायोमेट्रीक मे पंच करके फिर रजिस्टर मे साईन किया और मैं पहले DM Plant के पास गया उसके स्टीम बाईलर के पास गया उसके बाद मैं पेपर कटिंग के पास गया वहा पर और उसके बाद मैं चेंज मे गया अपना जूता चेंज करके अपरन पहन के हेट कैप और नोज मास्क लगाकर सेकेण्ड्री चेन्ज रूम मे जाकर के उसके बाद मैं Spraydryer Room मे गया और उस आपरेटर से बात किया उसका नाम अखिलेश निषाद है। वहा (Spraydryer का टैम्प्रेचर 202°C था जो नारमल था और वैकुम 30 wc था और आपरेटर ने बताया सब नारमल है और मैं भी कन्फर्म किया कि नार्मल है। वहा से मैं पैकींग एरिया के दरवाजे से क्वारनटाइन रूम से होते हुए अपने टेबल के पास गया वहापर मैंने अपना डायरी रखा और क्वारनटाईन दरवाजे वापस पैकिंग एरिया होते हुए बलेन्डर 2 के पास गया उस वक्त पैकिंग एरिया मे 2 बैचेस का माल 2 MT पड़ा था और बलेन्डर 2 का मैटेरियल खाली होके जो भी माल पैकिंग एरिया मे रखा जा रहा था। पहले बैच का सामपल QC वाले लेकर गए थे फिर मैं बलेन्डर 2 के पास गया बेलन्डर 2 खाली था। ~~वहां से मैं कोरीडोर होते हुए~~ ऐसा लगभग 3 MT माल पैकिंग एरिया में उपलब्ध था।

वहा से मैं कोरी डोर होते हुए P4 के पास गया और उस आपरेटर से बात किया सब नारमल था वहा से मैं FBD के रास्ते से P1 - P3 के पास गया वहा पर आपरेटर राम सिंह से बात किया सब नारमल बोला।

(signature) 01/08/25

पेज नं॰ 4

वहा से मै वापस FBD के पास आया सभी FBD में माल लोड किया हुआ था और ड्राईंग आपरेशन चालू था और मैं FBD आपरेटर मुनमुन चौधरी से बात किया वहा सब नारमल है। वहा से मैं SFD के पास गया और आपरेटर से बात किया वहा पर भी आपरेशन चालू था। SFD की साईड से मैं GLR के पास गया। वहा GLR-3 में SParger को खोलने के लिए बोला उसी वक्त जोरदार धमाका हुआ और जोर से फर्स जोर से हिलगयी और ज्यादा मात्रा मे धुआ आया और वहा कुछ दिखाई नही देरहा था धमाके की वजह से कुछ लोग थोडी दुर फेकेगये 2 सेकेन्ड मे ही धुआ वहा से निकल गया मैने देखा की सभी दिवार गिर गयी और Filter Press 1&2 पुरी तरह से नीचे गिर गये थे, और Filter Press 4 नीचे की तरफ झुक गया Filter Press 1&2 गीरने के बाद जो जगह बनी वहा से धुआ उपर आया वह धुआ बहुत गरम था लेकिन वो एरिया मे कोईभी आग नही थी।

हम सब लोग डरगए उसी समय मैंने वहा पर मौजुद 22 आदमी को पिछे की इमेरजेन्सी विन्डो से बाहर निकाला उसके बाद GLR5 के पास सीढ़ी लगाके चार आदमी को उतारा बाद मे मैं भी सीढ़ी से नीचे उतरा।

इसके बाद मै भागते हुए मेन गेट की तरफ आया और मैने देखा कि SPD और पैकिंग एरिया की बाल बिल्कुल गिरी हुई थी और पैकिंग एरिया मे जोरदार आग जलरही थी। उसी वक्त इंजीनीयरिंग Store और हेचार बिल्डीग मे भी आग जलरही थी,

[signature]
01/07/25

पेज नं०-5

उसी वक्त कैन्टीन के सामने वाली खाली जगह पे जहां पर टिपल के नीचे नए SFD के लिए लाया हुआ माल और Filter press के Plate सभी जल रहा था ~~स~~ रास्ते में GI Sheet और ~~बाकी~~ चीजें गीरी हुई के कारण ~~मैं~~ और आग की तीव्रता की वजह से मैं सेकुरीटी गेट की तरफ जा नहीं सका तब तक फायर बिग्रेड वाले आगए थे उन्हो ने आग बुझाने का कार्य शुरू किया मैं भी उनके साथ मे मदद करने लगा फिर हमने बचाव कार्य शुरू किया उसी समय काफी फोर्स पुलिस ~~SDR~~ SDRF, NDRF आगयी और सब लोग बचाव कार्य करने लगे थे ~~सब को 3 बजे तक घटना स्थल पर कार्य~~ सबसे पहले हम फायरबिगेड के साथ स्प्रेड्राई मे गये वहा पर मैंने जगन की मेरेनाम आवाज पियातीरु मैंने देखा की उसके ऊपर AHU Duct और SPD का बीम गीरा हुआ था हमने क्रेन बुलाया और हमने उसे बचाने का कोशिश की ~~लेकिन उसको बचा नही पाया~~ (जगन मोहन) हमने क्रेन बुलाया उसको निकाला और हास्पिटल भेजा उसके बाद हमने मेटल डिटेक्टर, F.G, Corentine Aria मे रखे माल को जहा पर आग लगी थी वहा पानी मारने का कार्य शुरू किया सब कुछ गीरा होने के कारण जहा से भी जगह मिलती थी वहा से हम पानी मारते थे Day FGG मे लगभग 10 MT, Metal Ditector मे 1 MT और Quarantine 1 MT और Packing मे 3 MT माल था

01/08/20

प.सं.नं. - 6.

थोड़ी देर मे ~~वो~~ चैन वाला डोचन आया और हमने मलवा सरकाने
का कार्य सुरु किया पहला व्यक्ति जिसको हमने निकाला
वो PU के सामने पड़ा था उसको चैन्जरूम के रास्ते से लाया वह
बुरी तरह जला था दुसरा व्यक्ति हमको मेटल डिटेक्टर के
कम्पार्ट मे मिला वह भी पुरी तरह जला था इसके बाद सबको
ढुढने का कोशिश किए सबसे ज्यादा लोग FBD और
Packing Area मे मिले उन ~~सभी~~ सभी लोगो के ऊपर
मलवा गिरा हुआ था लेकिन वो मलवा छोटा, छोटा टुकडे थे
~~मे होने के कारण हम लोगो के~~ वहां पर गरमी बहुत जादा
थी इसलिए JCB की मदत से वहा से फिर मलवा
हटाकर लोगो को बाहर निकाला गया सभी लोग
बुरी तरह से जल चुके थे। मै रात को 3 बजे तक
काम करता रहा और उसके बाद घर चला गया।
फिर सुबह मे मै 7:30 बजे वापीस आया और सभी लोगो
के साथ मदत कार्य सुरू किया बचाव कार्य 2 जुलाई तक
सुरु था।

हमारी कम्पनी आजतक कोई भी लेबर का स्ट्राइक नही हुआ
हमारे यहां पर कभी भी ~~लेब~~ वर्कर लोगो मे लेबर युनियन भी नही
बनाया।
कम्पनी के मालिक लोग सभी लोगो को उनके जरूरत के वक्त
मदत करते थे लोगो की बच्चों की ~~का~~ स्कूल, कालेज की
ऐडुमीशन शादी के वक्त भी मदद करते थे और हासपिटल
के वक्त भी मदद करते थे

[signature] 01/08/25

पेज नं. 7

इसीलिए हमारे मालिक लोगों ने कम्पनी को सिंगाची फैमली करके ही सम्बोधित थे। यहां पर हर साल 26 जनवरी को फेमलीडे मनाया जाता था उस दिन सभी सभी कर्मचारियों के फेमली को खाना और गिफ्ट दिया जाता था। सभी कर्मचारियों और मालिक लोगों के बीच प्यार और विश्वास था।

हमारे MD Amit sir, chairman sir, vice chairman sir जभी भी कम्पनी में आते थे कर्मचारी और वर्कर्स लोगों के कन्धों पर हाथ रख कर और पीठ थपथपा कर बात करते थे और उनके परिवार का सुख दुख पूछते थे।

यही मेरा बयान है और यह बयान मैंने अपनी राजी खुशी से बगर किसी के दबाव के तेलंगाना सरकार से नियुक्त एक सदस्य कमेटी के सदस्य निलेश उकुन्डे उनको हमारी कम्पनी के कैन्टीन में बैठ कर दिया ——

Kamala Prasad Patel
9393475532
Date 01/08/25

Annexure 17:

Statment ① 21/08/2025.

My name is Patlolla Rajashekar Reddy, (42 years)
Residence of Beeramguda, Amenpur, Sangareddy (dist)
M.NO: 9000963964.

I Have done M.Sc chemistry,

I Joined sigachi Industsies in 29 NOvembes 2021.
as a senior magages QC.

as a Head of the department I contsol
Total QC Related Activities.

After the Month of march 2025 the Production
as suddenly incriesd, manpowes in the
Production department was also Increased.

becese of Increase Production the worck
load on my depastment had also Increased.
in my depastment already thair wear ~~who~~
Two vacancies for the Post of chemist
SO I Requestd the managment fo increasing
ous manpowes.

(2)

this increased work load was primerly becose of incresed production. and also becose of addition of new GLR No.5.

in the month of may we Recived one chemist miss Jaya Prasanna. this healped in Reduction of some workload. from my staff my staff had Raised one consern about vibration's ~~felt white~~ in the structure while worcking. I also expereanced Small vibration's some time times. Perticulerly After Instalation of GLR-5 I observed that ~~bal~~ Analytical balance were not stable and saying was informed to the Production Head mr. Rafiq (After March 2025)

The managment was in the proses of studing and finding sellution for the Vaibration's.

This is my statment and I have given

(3)

this statment of my own wish and will without any fear or Pressure To nilesh ukunde, member of Teenical expest committe of Governament of Telangana.

becose of accident on 30 June I was Hospitalised for two days. for Reciept of Inguries my Right hand finger's are still not able To write Properly so I have Regeested To my chemist Mr. G. Naresh To write the statment.

G. Naresh wrote this statment as Per what I said. I Read this statment and found it OK.

G. Naresh.

P. Rajasheckar Reddy
Sr. Manager. QC
21/05/2025.
cell: 9000963964.

Annexure 18:

(1) Statement - 19-08-2021.

My name is K.V.S. Seetaya, Age 46 years
Residence adg. B3-16, Huda Colony, Khandrigam
my mobile number is 9949228079.
I did my Graduation in BCom and MBA
through distance mode.

I Joined Sigachi Industry Pathancheru
Com unit 18th march 2021 as a manager-HR&Admn.
Our Directly reporting to V.P (Operations) Late.
Sri. ME. Elangovan.

my Job activity's are!-

(1) Employees Attendance & Payrolls
(2) Employees welfare activity.
(3) Employees Recruitement & Joining.
formality
(4) Administration active site visitor, movement
vehicle movement, vehicle's maintenance.
and Driver, House keeping, etc.
(5) Security, House keeping, facility
the training requirements.

19/08/2021

(21) 1

Following are the details with respect recruitment & joining of staff & workers.

For the recruitment for the post Supervision and above Interviews and selection take place at the Corporate office HR of Plant Pathanamthitta unit not involved the recruitment of that people.

For workers & Helpers interviews are held at factory level Pathanamthitta and HR & respective Department involved into recruitment & selection process.

All the recruitments and joining happen only and only as per the Guidance and Instruction from Head office (Corporate office)

In our company for staff ~~[illegible]~~ for example Supervisory and above working General Shift which starts 9.00 AM to 5.30pm and other people including workers and helpers work in Shifts.

19/08/2018

(3)

When worker are helper comes for the Interview purpose
Job first he enter name in the visitor register at the Security. Security Guard after entering he's name in the visitor register bring him/her to the HR Department (First floor over Engineer Stores) HR will take. Preliminary Interview and tells him/her to bring Aadhar card, bank A/C, Passport size photo. Next day the person will come at 8.00 Am in the morning. he will enter his name in visitor register employees ~~in~~ & over movement at reception at the Security. Security will hand over him/her to the Production Department after HR reports on daily duty at 9.00 Am, Security will hand over the aadhar card & other documents of person's who have joined duty on the day. HR will prepare file of that helper and will call that helper add about 11.00 Am. that time. Process of bio materic. that person will be over. while going back in the Evening. He/she will leave the company by using biometric

19/08/2025

(9)

about training of the Helpers.

In our company all our helpers / workers are trained on the shop floor only. Depending upon the type of job. Expected from the worker / Helper his operator ~~will provide time~~ and his two. experience Helpers will provide training to the Newly recruited helper.

Company pays to the Helpers / workers much above the Raymond as mentioned in minimum wages act. company also payed them bonus as per Government norms.

For workers & Helpers there is ~~not~~ no minimum Eduction qualification required.

This my Statement and I have given this statement of my own with and will. without any pressure or fear to. Nilesh. Ukunde, member of Technical expert committe appointed by Telengana Government at my factory Pashamylaram on 19-08-2025 13.08 pm.

19-08-2025. KNS. Secretary.

Annexure 19:

Statement Date: 01/09/2025

My Name Is Dinesh Patel age: 25 years
address: Isnapur village mobile No: 8897059324
Iam 5th standard Past Person Iam working with
Sigachi Industries 2016 I work as operator
In Packing area In my area The work Is ~~both~~
weighing, scaling, stitching The MCC Product Bags
Production Supervisior Provides me Three helpers One
Each For Doing weaghing, scaling, stitching work
after our work Is over, other Helpers u Take The
Matirial and Place It In Packing area

This my statement. I give this statement of my own
without any pressure From Anybody. I give this
statement TO Nilesh Kakunde who is member of
Government Investigation Team.

Because I Do not ~~KD~~ know writing In English or Hindi
actually I Do not know writing any language here
I Requested my company ACO Mr. G.Vijay mobile: 800824
7375 TO kindly Help me In writing the statement and
This statement ~~as~~ Has been ~~Re~~ written by Him after I Told
The Things In Hindi.

G. vijay
01/09/2025
8008247375

दिनेश पटेल
8897059324
Dt. 1/9/2025
5: PM

Annexure 20:

Statement Date - 01/09/2025

my Name is Shakti Ranjan Das. Age (28)
Add:- (odisha). Jagatsingh pur, Rohia Patna

I have completed becom and also diplama
Fire Seafety Resuse, Bhobaneswer.
I work in INDUSTRIAL FIRE brigade
off POSAMYIARAM IALA since. APRIL
2024.
On 30 June with the FIRE tender I
REACHed the Sigachi company At
ABOUT 9.50 AM. I come INside off
the security gate And SOW one
person Lying near the car
near security cabin / office.
there was no FIRE TO the car
there was one Lady And 3/4
man near the TO the
TOILET area. I SOW huge
SMOKE coming from In front of the ladies
TOILET area. I immediately
Rushed outside. immediately there
was a huge explosion from
the area from there the smoke
was coming.

Sandeep 01/9/25

Shakti
Date: 01/09/2025

(2)

Immediately there was huge smoke And Hoge FIRE IN that ~~FIR~~ area
Two FIRE fighters were WITH me
we Immediately connected hose pipe
we SOW that the car was started burning And ALSO the person who was LYing near the car was also burning. there was A huge FIRE From the toilet TYIthe car the Lady And other 3/4 person were also INJURed And were buring
we SAW A white chemical SPRead on the ground. we used Foam And water for FIRE fighting.
when I FIRST saw that Lady, she was ALIVE And she told me TO go TO production AREa where many persons were trapped under collapsed building.

AFter extinguishing this FIRE we went INSide of the Plant from the back side boiler side gate And did FIRE fighting there.

This is my statement. I gave this statement TO mister niresh

Sandeep
01/09/25

Shakti
Date: 01/09/2025

(3)

Ukunde who is A member of Goverment committee.
I gove this stament without any fear of pressure.
I gave this statement of my own wish.
While giving this stament, my FIRE officer mr. Sandeep golla mob. (9000652503) is present.

Shakthi

Name: ShaktiRanjanDas
Date: 01/09/2025
mob: 7821781477

This Statment of Shakti Rajan Das Fire Man is taken in front of me and is Completly true.

Name: Sandeep Golla
MoB: 9000652503
Date: 01/09/25
Dept Fire officer
IALA Fire Station
Pashmylaram.
Pincode: 502307

Shift MoB
7095186666
7095286666

Annexure 21:

SIGACHI

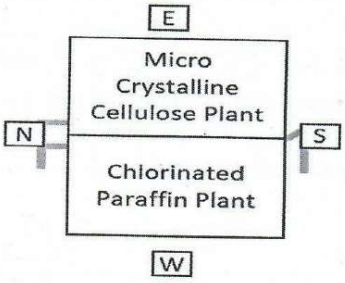
Company Profile : Sigachi Industries Limited

Sigachi Industries Limited, formerly known as Sigachi Chloro Chemicals Pvt. Ltd., was established in 1989 by three technocrats with a vision to build a reliable and quality-driven manufacturing enterprise. The company began its journey with the production of Chlorinated Paraffin and Hydrochloric Acid, and soon after, in 1994, implemented the ISO 9001 Quality Management System, reflecting its commitment to global standards from an early stage.

In 1995, anticipating emerging market needs, Sigachi strategically diversified its operations by introducing a second production line for Microcrystalline Cellulose (MCC) and Bulk Formulation Chemicals and Excipients. This new production block was constructed using an RCC structure over an area of 2,200 sq m, which was available vacant towards east side of the plot with provisions for future expansion in line with expected market growth.

As demand increased and the market recognized Sigachi as a dependable and high-quality supplier, the company undertook a series of infrastructure upgrades between 2003 and 2015. This included the installation of advanced equipment such as Glass-Lined Reactors, Filter Press, Spray Dryers, and Spin Flash Dryers, replacing older systems like ANF, Centrifuges, and earlier-generation reactors. The following is the list of machineries replaced during this period:

With	Replaced Equipment's
Glass Lined Reactors	Conventional Reactors
New Generation Filter Presses	Notch Filters
Spray Dryers, Spin Flash Dryers	Basket Type Centrifuges
Screw compressors, Hot Air Generators / Boiler	Reciprocating compressors
DM Plant Upgradation	DM Plant
ETP Upgradation	ETP



PLOT NO: 20

Given the sustained low-capacity utilisation of the Chlorinated Paraffin plant and its declining viability, Sigachi discontinued this unit in 2016 and reallocated the space for expanding MCC production. In response to growing demand, the company constructed a new warehouse for raw materials and finished goods in 2022 to scale its annual MCC production capacity significantly.

Sigachi is deeply committed to integrating ESG and CSR into its core strategy, reflecting its role as a responsible global pharmaceutical, food and nutrition ingredients manufacturer. Guided by international frameworks like GRI, SEBI's BRSR, and EcoVadis, Sigachi has identified material environmental and social priorities through a Double Materiality Assessment and is driving measurable action across energy efficiency, emissions reduction, water conservation, and inclusive workforce practices. On the social front, its structured CSR programmes are aligned with key UN SDGs, empowering over 5,000 tribal households in Gujarat, 800+ women in Odisha, and enhancing eye health for 7,000+ school children across 17 schools in India. Through strong governance, transparent disclosures, and purpose-driven partnerships, Sigachi is creating long-term stakeholder value while advancing sustainable development across communities and ecosystems.

Over the years, Sigachi has maintained a sharp focus on regulatory compliance, quality assurance, environmental stewardship, and occupational safety. The company holds multiple national and international certifications, including ISO 9001:2015 (Quality Management), ISO 45001:2018 (Occupational Health & Safety), ISO 14001:2015 (Environmental Management), EXCiPACT, FSSC 22000, GMP, cGMP, Halal, Kosher, USFDA, Good Facility Registration, and a Drug License.

The company's professional excellence and contribution to the MSME sector have earned it numerous prestigious accolades. These include the National Award for Small Scale Entrepreneurs in 1993, the State Award to Small Scale Entrepreneurs in 1997–98, the MSME Award in 2010, the Innovation Award for MSME in 2011, the National Award for Outstanding Entrepreneurship in 2011, the Small Giants Award in 2014, the National Best Employer Brand Award in 2018, and the Business Leader of the Year Award in 2019.

These recognitions are a testament to Sigachi's sustained commitment to innovation, operational excellence, and industry leadership. With a robust foundation, forward-looking vision, and a highly certified manufacturing setup, Sigachi continues to grow as a trusted partner in the global pharmaceutical and specialty chemical supply chain.

19.7.25
(Chidambaravarathan)
Exe. Vice Chairman

Annexure 22:

Non cooperation by the top management of Sigachi experienced by Mr Nilesh Ukunde:

Initially, when the Committee started working, Mr. K P Patel, the Production incharge helped us in understanding the Production process. He also helped us going to the site and making us know the equipment and its functioning. Initially we observed that only K P Patel used to accompany us for any need, but thereafter Mr. Rafiq Patel, AGM QA and the Plant Head, also started to accompany K P Patel. It was observed that the wholeheartedness with which K P patel was explaining the things to us had lost and it was replaced as tutored description. Rafiq Patel used to mingle in between and he being senior, K P Patel could not speak in front of him. This has xxx

Management of Sigachi put one condition on the Committee that they will not entertain any member of the Committee directly. For any requirement, we had to contact them through the Director of factories/ his representative. This adjustment ate up a whole lot of time of the Committee.

It was observed that Sigachi Management was deliberately delaying in sharing the readily available information, e.g. The Committee requested for manufacturing data for the period from January till June 2025 through the Director, Factory Inspectorate, we received the data, they provided the data after a gap of couple of days but the data provided was only for one day of every month.

Thereafter on repeated reminders they provided the data for five months, but after a huge follow up. Actually, they had this data readily available and on a click of a button they could have given this record, but they deliberately delayed.

Not providing the Statement of employees. Sigachi Management did not want us to take statement of its employees. Initially they provided statements to us, but later on the employees used to tell us that they do not wish to give us the statement.

The Plant head Rafiq also wrote the statement, but did not provide the same under the pretext that he wanted to get it cleared from the top management and only then he would provide the statement to us. Till writing the report we could not receive the statement of Mr. Rafiq. We observed that Sigachi was very uncomfortable whenever we used to speak about the presence of Sodium Chlorite. Till the end they did not share any information wrt the presence of Sodium Chlorite and also for the reason why they hid those burnt and exploded drums of Sodium Chlorite.

Many of the information we have to route through the Police for Sigachi, then only we received quick information. Thanks to DSP Mr, Prabhakar who helped us all the time we needed.

We have been insisting about the interview or Statement from the Safety Officer of Sigachi Mr. Abhishek who we understand underwent through the injuries in this accident, but we also had learnt that he was stable and discharged from the hospital. We did not receive any opportunity to either meet him or speak him.

ANNEXURE - I

SIGACHI INDUSTRIES LIMITED									
Compensation Paid Details | Deceased Employees as on 18.11.2025									
Deceased Employees		Paid Compensation Details as on 18.11.2025							
S.No	Employee Name	Contingency Expenses from Govt	Company Ex-gratia Cumulative	Workmen Compensation	EDLI - EPF	Total Compensation	F&F Settlement Amount	Medical Expenses	Grand Total
1	Jagadish Prasad	₹ 1,00,000.00	₹ 25,00,000.00	₹ 11,22,525.00	₹ 6,75,272.00	**₹ 43,97,797.00**	₹ 4,79,460.00		**₹ 48,77,257.00**
2	Manoj Kumar Rout	₹ 1,00,000.00	₹ 25,00,000.00	₹ 13,81,275.00	₹ 5,80,950.00	**₹ 45,62,225.00**	₹ 4,53,527.00		**₹ 50,15,752.00**
3	Hemasundar Bodigutta	₹ 1,00,000.00	₹ 25,00,000.00	₹ 12,93,900.00	₹ 6,04,940.00	**₹ 44,98,840.00**	₹ 2,92,033.00	₹ 4,96,600.00	**₹ 52,87,473.00**
4	Ram Singh	₹ 1,00,000.00	₹ 25,00,000.00	₹ 10,96,500.00	₹ 6,03,277.00	**₹ 42,99,777.00**	₹ 1,53,758.00		**₹ 44,53,535.00**
5	Jagan Mohan Venkat Rajanala	₹ 1,00,000.00	₹ 25,00,000.00	₹ 9,62,475.00	₹ 6,85,510.00	**₹ 42,47,985.00**	₹ 4,46,562.00	₹ 42,000.00	**₹ 47,36,547.00**
6	Bacchu Balakrishna	₹ 1,00,000.00	₹ 25,00,000.00	₹ 13,38,675.00	₹ 5,28,057.00	**₹ 44,66,732.00**	₹ 1,51,634.00		**₹ 46,18,366.00**
7	Akhileshwar	₹ 1,00,000.00	₹ 25,00,000.00	₹ 14,21,700.00	₹ 5,28,782.00	**₹ 45,50,482.00**	₹ 1,22,976.00	₹ 7,40,313.00	**₹ 54,13,771.00**
8	Nageshwar Rao Raja Ganga Vajjakeshavula	₹ 1,00,000.00	₹ 25,00,000.00	₹ 10,70,100.00	₹ 5,59,303.00	**₹ 42,29,403.00**	₹ 1,27,256.00		**₹ 43,56,659.00**
9	Munmun Choudhary	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 5,29,276.00	**₹ 31,29,276.00**	₹ 57,908.00	₹ 4,81,152.00	**₹ 36,68,336.00**
10	Nikhil Kumar Reddy Gonigenuru	₹ 1,00,000.00	₹ 25,00,000.00	₹ 15,12,450.00	₹ 5,64,576.00	**₹ 46,77,026.00**	₹ 70,222.00		**₹ 47,47,248.00**
11	Elangovan Elumalai Mudipali	₹ 1,00,000.00	₹ 25,00,000.00	₹ 10,70,100.00	₹ 7,00,000.00	**₹ 43,70,100.00**	₹ 10,44,104.00		**₹ 54,14,204.00**
12	Akhil Mothukuri	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 0.00	**₹ 26,00,000.00**	₹ 13,073.00		**₹ 26,13,073.00**
13	Laxmi Mukhiya	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 5,02,106.00	**₹ 31,02,106.00**	₹ 13,647.00		**₹ 31,15,753.00**
14	Dola Govindha Sahoo	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 5,14,518.00	**₹ 31,14,518.00**	₹ 16,275.00		**₹ 31,30,793.00**
15	Marrapu Praveen Kumar	₹ 1,00,000.00	₹ 25,00,000.00	₹ 11,98,500.00	₹ 6,21,659.00	**₹ 44,20,159.00**	₹ 1,87,123.00		**₹ 46,07,282.00**
16	Dasari Sunil Kumar	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 5,00,708.00	**₹ 31,00,708.00**	₹ 17,719.00		**₹ 31,18,427.00**

17	Tasallimudvin Ansary	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 4,24,287.00	**₹ 30,24,287.00**	₹ 13,610.00		**₹ 30,37,897.00**
18	Lagnajit Duari	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 4,68,374.00	**₹ 30,68,374.00**	₹ 13,739.00		**₹ 30,82,113.00**
19	Ramala Sri Ramya	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 7,574.00	**₹ 26,07,574.00**	₹ 7,167.00		**₹ 26,14,741.00**
20	Polisetti Jaya Prasanna	₹ 1,00,000.00	₹ 25,00,000.00	₹ 0.00	₹ 1,034.00	**₹ 26,01,034.00**	₹ 3,145.00		**₹ 26,04,179.00**
21	Subhadeep Sarkar	₹ 1,00,000.00	₹ 25,00,000.00		₹ 4,93,902.00	**₹ 30,93,902.00**	₹ 11,645.00		**₹ 31,05,547.00**
22	Atul Kumar	₹ 1,00,000.00	₹ 25,00,000.00		₹ 4,90,310.00	**₹ 30,90,310.00**	₹ 11,451.00		**₹ 31,01,761.00**
23	Dasari Ramamjaneyulu	₹ 1,00,000.00	₹ 25,00,000.00		₹ 4,82,144.00	**₹ 30,82,144.00**	₹ 11,046.00		**₹ 30,93,190.00**
24	Rukasana Khatun	₹ 1,00,000.00	₹ 25,00,000.00		₹ 3,74,824.00	**₹ 29,74,824.00**	₹ 9,005.00		**₹ 29,83,829.00**
25	Chhote Lal Kole	₹ 1,00,000.00	₹ 25,00,000.00		₹ 3,48,021.00	**₹ 29,48,021.00**	₹ 8,298.00		**₹ 29,56,319.00**
26	Asim Tudu	₹ 1,00,000.00	₹ 25,00,000.00		₹ 7,158.00	**₹ 26,07,158.00**	₹ 5,770.00		**₹ 26,12,928.00**
27	Shashibhushan Kumar	₹ 1,00,000.00	₹ 25,00,000.00		₹ 4,182.00	**₹ 26,04,182.00**	₹ 4,499.00		**₹ 26,08,681.00**
28	Sidharth Gouda	₹ 1,00,000.00	₹ 25,00,000.00		₹ 15,128.00	**₹ 26,15,128.00**	₹ 3,625.00		**₹ 26,18,753.00**
29	Raju Kumar	₹ 1,00,000.00	₹ 25,00,000.00		₹ 36,567.00	**₹ 26,36,567.00**	₹ 3,021.00		**₹ 26,39,588.00**
30	Prashant Mahapatra	₹ 1,00,000.00	₹ 25,00,000.00		₹ 23,431.00	**₹ 26,23,431.00**	₹ 3,208.00		**₹ 26,26,639.00**
31	Shyamsundar Tudu	₹ 1,00,000.00	₹ 25,00,000.00		₹ 2,820.00	**₹ 26,02,820.00**	₹ 2,500.00		**₹ 26,05,320.00**
32	Shambhu Ram	₹ 1,00,000.00	₹ 25,00,000.00		₹ 720.00	**₹ 26,00,720.00**	₹ 1,604.00		**₹ 26,02,324.00**
33	Bhimrao Vitthal Kandare	₹ 1,00,000.00	₹ 25,00,000.00		₹ 376.00	**₹ 26,00,376.00**	₹ 3,137.00	₹ 4,12,858.00	**₹ 30,16,371.00**
34	Aarif	₹ 1,00,000.00	₹ 25,00,000.00		₹ 376.00	**₹ 26,00,376.00**	₹ 4,882.00	₹ 6,61,400.00	**₹ 32,66,658.00**
35	Tarapada Tudu	₹ 1,00,000.00	₹ 25,00,000.00		₹ 2,820.00	**₹ 26,02,820.00**	₹ 7,273.00	₹ 19,32,623.00	**₹ 45,42,716.00**
36	Dibakar Basak	₹ 1,00,000.00	₹ 25,00,000.00		₹ 3,04,557.00	**₹ 29,04,557.00**	₹ 13,226.00	₹ 30,90,662.00	**₹ 60,08,445.00**
37	Ramthirath	₹ 1,00,000.00	₹ 25,00,000.00			**₹ 26,00,000.00**			**₹ 26,00,000.00**

38	Naga Paswan	₹ 1,00,000.00	₹ 25,00,000.00			**₹ 26,00,000.00**			**₹ 26,00,000.00**
39	Dipak Kumar	₹ 1,00,000.00	₹ 25,00,000.00			**₹ 26,00,000.00**			**₹ 26,00,000.00**
40	Dileep Gosai	₹ 1,00,000.00	₹ 25,00,000.00			**₹ 26,00,000.00**			**₹ 26,00,000.00**
41	Jithender	₹ 1,00,000.00	₹ 25,00,000.00			**₹ 26,00,000.00**		₹ 5,66,850.00	**₹ 31,66,850.00**
42	Ajay Mandal	₹ 1,00,000.00	₹ 25,00,000.00		₹ 606.00	**₹ 26,00,606.00**			**₹ 26,00,606.00**
43	Ramesh Goud	₹ 1,00,000.00	₹ 25,00,000.00		₹ 48.00	**₹ 26,00,048.00**			**₹ 26,00,048.00**
44	Chaithu Bathra	₹ 1,00,000.00	₹ 25,00,000.00		₹ 48.00	**₹ 26,00,048.00**			**₹ 26,00,048.00**
45	Purna Chandra Sha	₹ 1,00,000.00	₹ 25,00,000.00		₹ 274.00	**₹ 26,00,274.00**			**₹ 26,00,274.00**
46	Chikkan Singh	₹ 1,00,000.00	₹ 25,00,000.00		₹ 932.00	**₹ 26,00,932.00**			**₹ 26,00,932.00**
GRAND TOTAL		**₹ 46,00,000.00**	**₹ 11,50,00,000.00**	**₹ 1,34,68,200.00**	**₹ 1,21,89,447.00**	**₹ 14,52,57,647.00**	**₹ 37,89,128.00**	**₹ 84,24,458.00**	**₹ 15,74,71,233.00**

ANNEXURE - II

SIGACHI INDUSTRIES LIMITED									
Compensation Paid Details | Missing Employees as on 18.11.2025									
Missing Employees		Paid Compensation Details as on 18.11.2025							
S.No	Employee Name	Contingency Expenses from Govt	Company Ex-gratia Cumulative	Workmen Compensation	EDLI - EPF	Total Compensation	F&F Settlement Amount	Medical Expenses	Grand Total
1	Akhilesh Kumar Nishad	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,10,000.00**
2	Gundubelli Venkatesh	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,10,000.00**
3	Vijay Kumar Nishad	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,29,000.00**
4	Rahul Kumar Sharma	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,10,000.00**
5	Silvari Ravi	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,00,000.00**
6	Irfan Ansari	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,17,000.00**
7	Suryanollu Jastin	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,00,000.00**
8	Shivji Kumar	₹ 0.00	₹ 25,00,000.00			**₹ 25,00,000.00**			**₹ 25,10,000.00**
GRAND TOTAL		**₹ 0.00**	**₹ 2,00,00,000.00**		**₹ 0.00**	**₹ 2,00,00,000.00**	**₹ 0.00**	**₹ 0.00**	**₹ 2,00,86,000.00**

ANNEXURE - III

SIGACHI INDUSTRIES LIMITED							
Compensation Paid Details | Injured Employees as on 18.11.2025							
Injured Employees Details		**Paid Compensation Details as on 18.11.2025**					
S.No	**Employee Name**	**Contingency Expenses from Govt**	**Company Ex-gratia Cumulative**	**Total**	**Medical Expenses**	**Any other payments / expenses from Company**	**Grand Total**
1	Sanjay Kumar	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 65,869.00		**₹ 5,65,869.00**
2	Sanjay Mukhiya	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 63,163.00		**₹ 5,63,163.00**
3	Md Ghouse	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 1,23,171.00		**₹ 6,23,171.00**
4	P Rajashekar Reddy	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 38,031.00		**₹ 5,38,031.00**
5	Arjun Kumar	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 81,867.00		**₹ 5,81,867.00**
6	Ajim Ansari	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 1,21,311.00		**₹ 6,21,311.00**
7	Sanjay Kumar Yadav	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 1,14,523.00		**₹ 6,14,523.00**
8	Gali Yaswanth Kumar	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 63,757.00		**₹ 5,63,757.00**
9	Mevalal Singh	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 84,972.00		**₹ 5,84,972.00**
10	Chandan Kumar Nayak	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 3,63,334.00	₹ 14,800.00	**₹ 8,78,134.00**
11	M Divya	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 3,42,991.00		**₹ 13,42,991.00**
12	Abhishek Kumar	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 9,95,630.00		**₹ 19,95,630.00**
13	Sameer Padhi	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 9,88,544.00		**₹ 19,88,544.00**
14	Dharmraj Paswan	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 8,55,120.00	₹ 729.00	**₹ 18,55,849.00**
15	Kamlesh Ashrafi Mukhiya	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 7,62,824.00		**₹ 17,62,824.00**
16	Dhanveer Kumar Das	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 63,757.00		**₹ 5,63,757.00**

17	Ganesh Kumar Sah	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 62,529.00		**₹ 5,62,529.00**
18	Amarjit Kumar Sada	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 1,89,437.00		**₹ 6,89,437.00**
19	Ranjit Chauhan	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 1,11,495.00		**₹ 6,11,495.00**
20	Devchan Kumar	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 3,51,484.00	₹ 705.00	**₹ 8,52,189.00**
21	Videshi Kahar	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 6,26,168.00	₹ 715.00	**₹ 16,26,883.00**
22	Ganga Mukhiya	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 5,37,375.00	₹ 495.00	**₹ 15,37,870.00**
23	Neelambar Bhatra	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 68,876.00		**₹ 5,68,876.00**
24	Chitmasen Bhatra	₹ 50,000.00	₹ 4,50,000.00	**₹ 5,00,000.00**	₹ 1,28,990.00		**₹ 6,28,990.00**
25	Dablu Kumar	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 7,23,049.00		**₹ 17,23,049.00**
26	Mamindla Sushma	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 34,04,182.00		**₹ 44,04,182.00**
27	Rajesh Kumar Chaudhari	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 52,93,257.00		**₹ 62,93,257.00**
28	Peddolla Abhilash	₹ 50,000.00	₹ 9,50,000.00	**₹ 10,00,000.00**	₹ 75,90,185.00	₹ 11,392.00	**₹ 86,01,577.00**
GRAND TOTAL		**₹ 14,00,000.00**	**₹ 1,81,00,000.00**	**₹ 1,95,00,000.00**	**₹ 2,42,15,891.00**	**₹ 28,836.00**	**₹ 4,37,44,727.00**

ANNEXURE - IV

Answer

My name is Kamala Pratap Patel, age 55 years, residing at

House No. 7-88/1/3 DN Colony, Muttangi, Patancheru, Sangareddy, TS

My education is up to BSc (private).

In June 1994, I joined Sigachi Company at IDA Pashamailaram. At that time, it was only Sigachi Chloro Chemicals.

The construction of the MCC product plant started in 1994 under my supervision.

Construction was completed in May 1994, and MCC's production began. At that time, there were two FRP reactors and the equipment included an FRP notched filter, centrifuge, pre-pulverizer, an FBD (Fluidized Bed Dryer), pulveriser, blender, sifter, weighing machine and sealing machine. . We didn't have a proper sealing machine at that time; we used to tie the bags with thread. Later, we started using plastic ties instead of thread.

Around 2001, only one FBD was in operation, and the heating was done with steam. Then a second FBD was introduced, and in 2003-2004, the spray dryer came into use. At that time, the spray dryer was supplied with heated air from an LBD burner.

Around 2001, a single FBD (Fluidized Bed Dryer) was being used and the heating was done with steam. Then a second FBD was introduced in 2003-2004, a spray dryer was added. At that time, the spray dryer was heated using an LBD (Liquid Burner Dryer) burner.

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In 2006, a thermatic fluid heater was installed to heat the spray dryer. In 2014, the SFD (Spray Fluid Dryer) was introduced; at that time, there were only two FBDs (Fluid Bed Dryers). At that time, there were two FRP reactors; the second FRP reactor was brought in during 1999-2000. At that time, there were only two pulverizers, number 1 and 2. Both pulverizers were in the SFD line. At that time, we only had one blender and that blender was near FBD 5,3. This was all until 2007. In 2009-2010, new machines were introduced with new technology.

The condition of the machinery before the incident on June 30, 2025, was the same as it was during the period of 2009-2010. A few machines were moved from one place to another. HAG's system was introduced around 2023-2024.

The condition of the machinery before the incident on June 30, 2025, was the same as it was in 2009-2010, with only minor adjustments to some of the machines. The HAG system was implemented around 2023-2024.

My position is Production In-charge. I arrive at work every morning between 8:30 and 8:50 AM. Upon arrival, I walk around the entire plant from the outside before going inside. After that, I talk to all the machine operators. My responsibility is to give instructions to all the operators to ensure production is carried out according to the required grade. I then leave for home between 6:30 and 7:00 PM.

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On Monday, February 30th, 2025, I arrived at 8:00 AM as usual. Upon arrival, I punched in at the biometric machine at the gate and then signed the register. I first went to the DM plant, then to its steam boiler. After that, I went to the motor control room. Then I went to the changing room. I changed my shoes, put on my apron, hat, and face mask, and went to the secondary changing room. From there, I went to the spray dryer room and spoke to the operator, whose name is Akhilesh Nishad. The spray dryer temperature was 202 degrees Celsius and the vacuum was 30 WCC. The operator said everything was normal, and I also confirmed that it was normal. From there, I went through the quarantine room door to the packing area and then to my table. I kept my diary there. Then I went back through the quarantine door to the packing area and then to Blender 2. At that time, 2 MT of material from two batches were lying in the packing area, and the material from the blender was being emptied and also placed in the packing area.

The QC team had taken the first batch of materials. Then I went to Blender 2, but Blender 2 was empty. Approximately 3 MT of material was available in the packing area.

From there, I went through the corridor to P4 and spoke to the operator there. Everything was normal. From there, I went via the FBD route to P1-P3 and spoke to the operator, Ramsingh. He said everything was normal.

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From there, I returned to the FBD area. All the FBDs were loaded with goods and the driver operation was underway. I spoke to the FBD operator, Munmun Chaudhary and everything was normal there. From there, I went to the SFD area and spoke to the operator. The operation was also running there. From the SFD, I went to the GLR area. There, I asked them to open the separator in GLR-3. At that moment, there was a loud explosion. The floor shook violently and a large amount of smoke came out. Visibility was completely obscured. Due to the explosion, some people were thrown a short distance away. The smoke cleared within two seconds. I saw that all the walls had collapsed. Fitter presses 1 and 2 had completely fallen down and fitter press 4 had tilted downwards. After filter presses 1 and 2 were removed, smoke rose from the space that was created. The smoke was very hot, but there was no fire in that area.

We were all terrified. At that moment, I helped 22 men escape through the emergency window at the back. After that, I used a ladder near GLR 5 to help four more men get down. Then I also climbed

down the ladder. After that, I ran towards the main gate. I saw that the wall of the SPD and packing area had collapsed and there was a huge fire burning in the packing area. At the same time the engineering store and the Hangar building were also on fire.

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At that moment, in the open space in front of the canteen, where the goods brought for the new SFD and the fitter press plates were lying under the tarpaulin, everything was on fire. Due to the intensity of the fire and the GF sheets and other materials scattered on the ground, I couldn't reach the security gate. By then, the fire brigade had arrived and started extinguishing the fire. I also joined them in helping. Then we started the rescue operation. At the same time, the rest of the police force, SDRF and NDRF arrived and everyone started the rescue work. First, we went to Spreadry with the fire brigade. When Jagan called out my name there, I saw that an AHU duct and an SPD beam had fallen on him. We called a crane and tried to rescue him. (Jagan Mohan) We called a crane and pulled him out. We then sent him to the hospital. After that, we started spraying water on the materials kept in the metal detector area, F4 quarantine area and other areas where the fire had spread. Because everything was scattered, we sprayed water from wherever we could find an opening. There were approximately 10 MT of material in the DFG area, 1 MT in the metal detector area, 1 MT in the quarantine area, and 3 MT in the packing area.

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After a short while, the Chain Tow Truck arrived and we started the work of clearing the debris. The first person we pulled out was lying in front of the Pu area. We brought him out through the changing room. He was badly burned. We found the second person in the metal detector compartment. He was also completely burned. After that, we tried to find everyone else. Most of the people were found in the FBD and packing areas. Debris had fallen on all of them, but it was in small pieces. It was very hot there, so with the help of a JCB, we removed the debris and pulled the people out. Everyone was severely burned. I worked until 3 AM and then went home. I came back at 7.30 AM and started the rescue work with everyone else. The rescue operation continued until July 2nd.

Our company has never had a labour strike. Our workers have never formed a labour union. The company owners always helped everyone in their time of need, such as with school and college admissions, during weddings, and during hospitalizations.

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Therefore, our owners always referred to the company as the Sigachi Family. Every year on 26th January, Family Day was celebrated here. On that day, all the employees' families were given food and gifts. There was love and trust between all the employees and the owners.

Whenever our MD, Amit Sir, Chairman Sir, and Vice Chairman Sir came to the company, they would talk to the employees and workers, putting their hands on their shoulders and tapping on the back. They would also inquire about the well-being of their families.

This is my statement. I gave this statement voluntarily, without any pressure from anyone, to Nilesh Ukunde, a member of the expert committee appointed by the Telangana government, while sitting in our company's canteen.

Kamla Prasad Patil

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Date: 01.08.2025