**BEFORE THE GREEN TRIBUNAL SOUTHERN BRANCH**
**CHENNEI**

**Application No 39 of 2024 (SZ)**

**In the Matter of**

**Mr. Jonatt Jose** — **Applicant**

**Versus**

**The Secretary, MoEF&CC & others** — **Respondents**

## Index



**Signed and verified on this.23rd... day of September 2025**

**Counsel for Applicant**

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## A. Reply Statement in Response to the report submitted by the 6th respondent

1. The report submitted by the Environmental Engineer of the Kerala State Pollution Control Board, District Office, Thrissur the 6th respondent as per the order dated 10/01/2025 states that the factory has installed air pollution control devices (APCD) and chimney but it has not mentioned about Flue Gas Desulfurization (FGD) system which is mandate for the users of raw petroleum coke. The reports of 28th March 2025 and 29.07.2025 affirm the continued presence of foul odour, which has been the consistent grievance raised by the applicant and the local residents. Notably, the inspecting officer personally experienced the offensive smell during the visit and suffered from respiratory discomfort, including severe coughing triggered by the odour. During interaction, it became evident that the instruments and equipment brought by the inspection team were not adequately equipped to detect odour or to identify the specific toxic gases associated with it. Therefore, the pollution is still persisting and it is an actual issue and phenomenon and that correct inspection is not carried out as far as the level of pollution is concerned. Why are they not checking the source area of the smell and pollution to identify the emission level when the furnace is fully active.

2. In the same report, Paragraph 1 records that the unit, by its letter dated 20.05.2025, asserted that the process of modernization had been completed and that full-scale operations had resumed. However, despite these claims, the residents continue to suffer from the persistent and noxious odor emanating from the factory, a fact expressly acknowledged in the report itself. This clearly establishes that the measures purportedly undertaken by the unit are either superficial and intended merely to create an appearance of compliance such as the token installation of an industrial stack or that the equipment installed is defective, non-operational, or grossly inadequate to mitigate the pollution being caused. The comparative

study shows the unscientific way the modernizations is carried out. A comparison of the system installed by Volga Abrasive Factory, Russia and Carborundum Universal Limited, Nalukettu can explain the unscientific way the system is installed in Carborundum Universal Limited, Nalukettu. (Annexure 1)

3. Further, Paragraph 1 of the report refers to the unit's intimation dated 20.05.2025, pursuant to which an inspection was carried out on 21.05.2025 in compliance with the Hon'ble NGT order dated 28.03.2025. However, the report is conspicuously silent on the status of the Flue Gas Desulfurization (FGD) system a critical and advanced pollution control mechanism that integrates both wet and dry scrubbing processes to ensure high efficiency in the removal of sulfur dioxide ($SO_2$). The absence of any reference to the completion or operational functionality of this essential system raises serious concerns about the adequacy of the measures claimed to have been undertaken by the unit to comply with the directions of this Hon'ble Tribunal and applicable environmental standards.

4. The report itself acknowledges the presence of a persistent and offensive odor from the unit, yet paradoxically claims that pollution levels are within permissible limits. This contradiction raises serious doubts about the accuracy and adequacy of the monitoring process. Local residents have repeatedly complained about the foul smell and its harmful effects. A detailed survey and mass petition highlighting the nuisance and related health concerns have been submitted to the authorities, but no effective action has been taken. The immediate neighborhood continues to suffer from noxious emissions, unbearable odor, and airborne pollutants, causing severe inconvenience, health hazards, and environmental degradation. Despite multiple formal complaints, the authorities have failed to act, amounting to a dereliction of their statutory duty. Judicial intervention is therefore necessary to ensure compliance with environmental laws and to protect the fundamental rights of the affected community. (Annexure 2).

5. The situation became so severe that residents were compelled to submit a formal petition to the concerned government authorities, outlining the nature of the pollution, its adverse impact on public health, and violations of environmental laws. Despite these documented appeals, the authorities' response has been grossly inadequate, reflecting negligence and lack of accountability. This continued inaction has aggravated the suffering of the affected neighborhood and necessitates urgent judicial intervention.

6. The immediate neighborhood has been the foremost and direct victim of the persistent and unchecked pollution emanating from the said industry. Residents living in close proximity

to the factory premises are being continuously and involuntarily exposed to noxious emissions, unbearable foul odors, and hazardous airborne particulate matter. This prolonged exposure has resulted in grave inconvenience, serious health hazards, and irreparable environmental degradation. Alarmingly, a significant number of residents have already developed respiratory ailments and related health complications, with several cases escalating to life-threatening conditions. The community now lives under a constant and well-founded fear for their lives and well-being, particularly after witnessing neighbors and family members succumb to similar symptoms and illnesses directly linked to the ongoing pollution. Such circumstances constitute a violation of the residents' fundamental right to life and clean air under Article 21 of the Constitution, warranting immediate and stringent judicial intervention.

7. Despite the installation of an industrial stack and other purported pollution control systems, the foul odor and harmful emissions continue unabated to this day. Yet, both the factory management and the Kerala State Pollution Control Board (KSPCB) repeatedly assert that the pollution remains "within permissible limits" and "under control." Such claims are not only contradictory but also deeply misleading. If, as stated, effective systems were installed to mitigate the pollution, it defies logic and common sense that the noxious smell and emissions persist with the same intensity. This raises serious questions as to what was actually installed, whether such installations are functional, and whether the reports furnished by the unit and endorsed by the KSPCB are accurate or merely perfunctory in nature. The continued reliance on the vague assertion that the pollution is "within the preview of the guidelines," both before and after these installations, is wholly untenable. It reflects either a gross failure in monitoring or a deliberate attempt to mislead the public and this Hon'ble Court. Such statements, unsupported by verifiable data and tangible results, amount to nothing short of a willful misrepresentation and an attempt to shield the erring industry from accountability, thereby undermining the very purpose of environmental regulation and the statutory duty of the KSPCB.

8. The petitioner, in an effort to safeguard the health and well-being of his family, was compelled to relocate them to a rented residence situated approximately 5 kilometers away from his ancestral home, which lies in close proximity to the respondent factory. During their stay at the rented premises, there was a marked and consistent improvement in the health of the family members, clearly indicating the direct correlation between their ailments and the pollution emanating from the factory. Relying on the assurances provided by the factory that the necessary pollution control systems had been duly installed and were fully operational, the petitioner and his family returned to their ancestral home on or about

August 14th to 16th. However, almost immediately upon their return, the petitioner and his minor children began to experience the same health problems they had previously suffered, including severe eye irritation, respiratory infections, lung-related ailments, and other associated health issues. The situation deteriorated to such an extent that the children were unable to attend school for an entire week and had to undergo medical treatment. Consequently, and out of sheer necessity, the petitioner was once again forced to move his family back to the rented house in order to protect them from further harm. This sequence of events irrefutably demonstrates the ongoing and unabated pollution caused by the factory, as well as the ineffectiveness or non-functionality of the purported pollution control measures claimed to have been installed.

9. The machines currently being used by the industry are inadequate and incapable of accurately detecting specific gases or identifying the source of the foul odor prevalent in the surrounding environment. Consequently, the reports generated based on data from these machines are unreliable and susceptible to manipulation, as they fail to capture the actual extent and nature of the emissions. To conduct a fair and accurate assessment of the situation, it is imperative that advanced gas detection systems be installed. Such systems must be capable of identifying sulfur emissions and other hazardous gases, along with the associated odors, to ensure comprehensive monitoring and accountability. However, the industry has wilfully failed to install the necessary equipment required to effectively capture and measure both pollution levels and odor emissions. (Annexure 1)

10. MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE (CP Division) has affirmed the fact of the pollution and hazardous industrial practices happening the said factory. This submission is in reference to the trailing communication forwarded by the Central Pollution Control Board (CPCB), Delhi, concerning a public complaint regarding the alleged illegal and hazardous industrial practices of Carborundum Universal Limited, Nalukettu, Thrissur, Kerala. The Chairperson of the Kerala State Pollution Control Board (KSPCB) has herself acknowledged the unprofessional and negligent manner in which the said industry is being operated. She has further stated that any minimal improvements observed at the factory have been made solely due to the consistent and tireless efforts of Mr. Jonatt Jose, the complainant in this matter. (Annexure 3).

11. It is highly questionable whether the factory has deployed all the prerequisites required for the safe and lawful use of raw Petcoke. Petcoke is known to contain a significant proportion of volatile matter (in some cases up to 10–20%). During the initial heating phase, this volatile matter rapidly vaporizes and combusts, releasing harmful gases, including:

- **CO and $CO_2$** from partial and complete oxidation of carbon.
- **$SO_2$** arising from the sulfur content in Petcoke (typically 2–7%).
- **Hydrocarbons and VOCs**, including hazardous aromatic compounds.

12. Former employees of the factory have provided testimony confirming that, during the initial heating stages of the manufacturing process, the furnace area became unbearable due to the release of heavy and noxious gas emissions. In the absence of any effective scrubber or filtration system, these hazardous emissions were discharged directly into the open atmosphere, posing a significant threat to public health and the environment. The factory, in blatant disregard of established environmental norms and statutory obligations, permitted such gases to burn off without implementing any proper flue-gas treatment systems or requisite pollution control measures.

13. Furthermore, the so-called hood system installed by the factory is grossly inadequate and amounts to nothing more than a token measure to create the appearance of compliance. The said hood is structurally and technically incapable of effectively capturing or containing the harmful gases being emitted. The continued persistence of foul odors and visible emissions clearly demonstrates its complete failure in mitigating pollution. In practical terms, it is akin to deploying a small household exhaust fan for an industrial-scale operation an unscientific and wholly ineffective engineering practice. Such actions constitute a deliberate attempt to mislead the authorities and this Hon'ble Tribunal, while the surrounding community continues to suffer from unabated pollution and its harmful consequences. (Annexure 2).

14. The government-mandated chemical treatment systems for controlling sulfur dioxide ($SO_2$) emissions from flue gas streams are well-defined and include the following:
    a) **Wet Scrubbers –** These systems utilize an alkaline solution, such as limestone or lime slurry, to effectively absorb and neutralize $SO_2$.
    b) **Dry Scrubbers –** These employ dry sorbents, such as hydrated lime, which react with $SO_2$ to form solid byproducts that can be safely removed.
    c) **Flue Gas Desulfurization (FGD) –** An advanced and highly efficient process that combines both wet and dry scrubbing methods to achieve maximum $SO_2$ removal.

    However, the report merely mentions the presence of a Cyclone Separator, which is designed solely to remove particulate matter and is entirely ineffective in treating gaseous pollutants such as $SO_2$. In the complete absence of any of the prescribed $SO_2$ treatment systems, it is inexplicable and scientifically untenable that the reported data reflects pollution levels "within permissible limits." This glaring discrepancy strongly suggests

either gross negligence in monitoring or deliberate manipulation of pollution control data. Such misrepresentation not only undermines the regulatory framework but also constitutes a serious attempt to mislead the authorities and this Hon'ble Tribunal, while the local community continues to suffer the consequences of unabated toxic emissions.

15. **Kochi Refinery – Bharat Petroleum Corporation Ltd.** has issued a clear safety direction stating: "Do not use water on fires in enclosed spaces due to the potential for hydrogen and carbon monoxide production." However, it has come to notice that the refinery is engaging in water cooling, which leads to the condensation of sulphur. It is highly doubtful whether an adequate water treatment plant exists for this process. Former employees of the refinery have also reported that water cooling was routinely used to accelerate production, despite the risks involved. Many of these workers later faced serious health issues and were compelled to leave their jobs. (Annexure 4).

16. We would like to know the factory has installed the prerequisite **Flue Gas Desulphurization System** prescribed **by the order of National Green Tribunal Principal Bench New Delhi Petcoke,** with a Sulphur (SO2) emission removal efficiency greater than 90% in Carborundum Universal Limited, Nalukettu. The factory has failed to install, **by the order of National Green Tribunal Principal Bench New Delhi Petcoke,** the prerequisite Flue Gas Desulphurization System with a Sulphur (SO2) emission removal efficiency greater than 90% over the past 40 years and yet they claim that pollution is under control.

17. There is no indication of compliance with the mandatory requirement to install a system that utilizes inert gases to prevent the uncontrolled burning of petroleum coke (Petcoke). (Photographic evidence of the furnace actively burning Petcoke is attached herewith for reference.) Furthermore, there is no documentation or reference indicating the presence of a proper flaring system, which is essential for the safe handling and controlled combustion of volatile gases. It is also noted that the unit has not obtained the requisite permissions from the competent authorities for the installation and operation of such a system, thereby operating in clear violation of regulatory standards.

18. Direct water cooling in the Acheson process can produce sulfurous gases — and in some cases, sulfurous acid ($H_2SO_3$) in solution depending on the impurities present in the raw materials, especially the petroleum coke (petcoke) used as a carbon source. Petroleum coke (petcoke), which is typically used in the Acheson process, contains 1–7% sulfur by weight, depending on its grade and source. During high-temperature operations (2,000–2,500 °C),

sulfur in the petcoke undergoes oxidation and volatilization, forming sulfur oxides: $S+O2 \rightarrow SO2$ , $2SO2+O2 \rightarrow 2SO3$ . $SO_2$ (Sulfur Dioxide) is the dominant gaseous emission. Some $SO_2$ further oxidizes to $SO_3$ (Sulfur Trioxide) in the presence of oxygen and high temperatures. The said factory is using around 1,00,000 litters of water for the direct cooling of the furnace. As a matter of fact, the PH level of the soil is considerable high in our area. $SO_2$ (Sulfur Dioxide) leads to Acid rain formation, vegetation damage in the environment and Lung irritation, asthma, bronchitis health of the local people, $H_2SO_3$ (Sulfurous Acid) leads to Acidification of water bodies, corrosion and Eye and skin irritation to the people, $H_2SO_4$ (Sulfuric Acid) leads to Strong corrosive effects, metal degradation and Severe respiratory irritation and lung damage to the people. The factory has been running past 40 years without any pollution mitigating system.

19. Use of Banned Fuel in Violation of Environmental Norms: Petcoke, a highly polluting fuel that has been banned for combustion purposes, is being used in Silicon Carbide production under the pretext of being a "raw material," despite the availability of multiple environmentally safer substitutes. This practice is in direct contravention of environmental guidelines and regulatory directives. Further, as per the Hon'ble National Green Tribunal, Principal Bench, New Delhi, Petcoke cannot be used without proper treatment through Flue Gas Desulphurization (FGD), degasification, or dehydrogenation processes to eliminate toxic emissions. Additionally, the rules mandate that pollutant gases generated must be flared as per the prescribed gas flaring norms. However, the said factory does not have any such treatment or flaring system in place, thereby allowing untreated hazardous gases to be released into the open environment.

20. Using petroleum coke (Petcoke) as the carbon source in the Acheson process (typically used for producing silicon carbide) has specific chemical and environmental implications, particularly during the first 5 hours, which is when the peak of volatile release and gas emission occurs. Chemical and Process Implications of Using Petcoke in the Acheson Process (First 5 Hours). The furnace is designed to restrict airflow to the reaction zone. Only a controlled, small amount of air (oxygen) is allowed inside. This ensures not enough oxygen for full combustion, favouring partial combustion (CO formation). Use of an inert or controlled atmosphere. Sometimes inert gases like nitrogen or recycled gases are used to dilute oxygen. This helps maintain the reducing environment inside the furnace. Sealed furnace design. The furnace is tightly sealed to prevent excessive air ingress. Operators control vents and openings carefully. Fire is a chemical reaction known as combustion that produces heat and light. It occurs when three elements are present together — often called the fire triangle:

- Fuel – something that burns (wood, paper, gasoline, etc.)
- Oxygen – usually from the air
- Heat – enough to start and sustain the burning

21. Petroleum Coke is used in the Acheson process, where it's burned to produce high temperatures (around 2000-2500°C) for the production of silicon carbide (SiC) in an Acheson furnace. The Petcoke serves as a carbon source and fuel, enabling the high-temperature reaction needed to synthesize SiC. When fuel is burned, it undergoes a chemical reaction called combustion. This process combines the fuel's carbon atoms with oxygen from the air, producing carbon dioxide (CO2) as a byproduct.
    a) Fuel (e.g., gasoline, coal, natural gas) contains carbon and hydrogen atoms.
    b) When fuel is burned, the carbon atoms combine with oxygen (O2) from the air.
    c) This reaction forms CO2 (carbon dioxide) and releases energy.

    The amount of CO2 produced depends on the type and amount of fuel burned. This process is a major contributor to greenhouse gas emissions and climate change

22. During the **first five hours of operation** in the Acheson process, where **petroleum coke (petcoke)** is used as the carbon source for producing silicon carbide, there are significant **chemical and environmental implications**. This initial phase represents the **peak period of volatile release and gas emissions**, making it the most critical stage for monitoring and control. Chemical and Process Implications of Using Petcoke in the Acheson Process. The furnace is designed to restrict airflow to the reaction zone. Only a controlled, small amount of air (oxygen) is allowed inside. This ensures not enough oxygen for full combustion, favouring partial combustion (CO formation). Use of an inert or controlled atmosphere. Sometimes inert gases like nitrogen or recycled gases are used to dilute oxygen. This helps maintain the reducing environment inside the furnace. Sealed furnace design. The furnace is tightly sealed to prevent excessive air ingress. Operators control vents and openings carefully. Fire is a chemical reaction known as combustion that produces heat and light.

23. Petcoke, being a carbon-rich fuel with a high calorific value, has the capacity to burn even under low-oxygen conditions, such as those present in an Acheson furnace. This is due to specific chemical reactions occurring during the heating process. In particular, silica ($SiO_2$), when subjected to extremely high temperatures, undergoes a reduction reaction in which oxygen atoms are released from the silica compound. This liberated oxygen then supports the combustion of Petcoke, enabling it to burn even when ambient oxygen levels are insufficient for normal combustion. It is pertinent to note that the Central Pollution Control Board (CPCB), in Annexure 4, page 17, has expressly directed that a detailed scientific study be conducted to examine this phenomenon. However, the Kerala State Pollution

Control Board (KSPCB) has failed to undertake such a study, thereby disregarding the CPCB's directive. This omission constitutes a serious violation, as it not only overlooks the binding directions of the Hon'ble National Green Tribunal (NGT) but also reflects gross negligence and inaction on the part of multiple departments, including the KSPCB, the Department of Boilers and Safety, and the Department of Health. The failure to investigate and regulate this critical issue has allowed the continued operation of the furnace under hazardous and unregulated conditions, directly endangering public health and the environment, and undermining the rule of law.

24. **Prohibited Use of Petcoke:** Petcoke, a highly polluting banned fuel, is being used in Silicon Carbide production in the name of raw material, despite the availability of multiple substitutes, which contravenes environmental guidelines. How can it be used in the open furnace in the name of raw material. The first five hours of the Acheson process represent a critical emission phase with significant environmental and public health implications. The use of high-sulfur petcoke, combined with lack of emission control systems, results in the release of harmful pollutants. These emissions not only breach national environmental standards but also undermine the health and safety of the surrounding communities. It is therefore imperative that the Tribunal intervene decisively.

25. The petition submitted before this Honorable Court does not represent the concern of a single individual but reflects the collective grievance of the entire neighborhood. Numerous residents have been suffering from serious respiratory ailments, and several deaths have tragically occurred as a direct consequence of prolonged exposure to the industrial emissions. The company, instead of addressing these grave health and environmental issues, has allegedly engaged in intimidating and silencing the local population, thereby preventing them from voicing their suffering and concerns. This case, and the progress it has made, has empowered the affected community, giving them the courage to come forward and speak for themselves. As evidence of the widespread nature of this problem, the immediate neighborhood has now submitted a mass petition, underscoring the urgent need for judicial intervention to safeguard their health, safety, and fundamental rights.

26. The conduct of the Kerala State Pollution Control Board (KSPCB) in this matter has been wholly arbitrary, negligent, and in direct violation of its statutory duties. Despite repeated notifications and directives issued by various competent authorities, including the Central Pollution Control Board (CPCB) and the Hon'ble National Green Tribunal (NGT), the KSPCB continues to support and shield the offending factory by repeatedly asserting that the pollution levels are "under control." Such a position is wholly untenable and devoid of

any scientific or factual basis, particularly in light of the overwhelming evidence of unabated foul odors, harmful emissions, and persistent health hazards experienced by the local population. This pattern of conduct unmistakably demonstrates collusion and complicity between the KSPCB and the factory, effectively placing them in pari delicto acting together to suppress the truth and evade accountability. The continued inaction and misrepresentation by the KSPCB amount to a gross breach of its statutory obligations under the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, and relevant environmental regulations. By willfully overlooking violations and endorsing misleading claims of compliance, the KSPCB has not only facilitated ongoing environmental degradation but has also undermined public trust in regulatory governance. This Hon'ble Tribunal is therefore urged to take serious note of the KSPCB's role in perpetuating this violation, as its conduct amounts to dereliction of duty, wilful misrepresentation, and abetment of environmental offenses under the applicable statutory framework. The KSPCB must be held jointly and severally liable for the continuing pollution and its devastating impact on public health, the environment, and the fundamental rights of the affected community under Article 21 of the Constitution of India.

27. The industrial Acheson route to silicon carbide operates at ~2,000–2,500 °C and requires carbon feedstock that is free of volatile hydrocarbons; standard practice is to use calcined petroleum coke (CPC) produced by rotary calciners (≈1,150–1,450 °C) whose off-gases are combusted and treated. If green / untreated petroleum coke is directly fed to an Acheson resistance furnace and the furnace is not maintained in an oxygen-free or gas-controlled atmosphere, the volatiles will ignite and uncontrolled combustion will occur producing substantial $CO_2$, $SO_2$, NOx and particulate (PM) emissions, and mobilising trace metals (Ni, V) as fugitive dust with predictable public-health risks (respiratory and cardiovascular), and violation of emissions and procedural safeguards required by CPCB/MoEF and the Supreme Court in the M.C. Mehta proceedings.

28. The Acheson carbothermal process for producing silicon carbide requires feed carbon (such as petroleum coke) to be pre-treated (calcined / gasified) to remove volatile matter, moisture and impurities before being used in high temperature furnaces operating at approximately 2,000–2,500 °C. If untreated (green) petroleum coke is directly fed, volatile hydrocarbons evolve, may ignite uncontrolledly in presence of oxygen, and the process ceases to be purely reduction but becomes combustion / mixed oxidation, leading to elevated emissions of $CO_2$, CO, $SO_2$, NOx, particulate matter (PM), and trace (heavy) metals.

29. Under the Supreme Court's and CPCB's orders in the case of M.C. Mehta v. Union of India, Writ Petition (Civil) No. 13029 of 1985, and subsequent related directives, the use of petroleum coke and furnace oil in industries in the National Capital Region (NCR) (including the states of Delhi, Uttar Pradesh, Haryana and Rajasthan) has been banned from November 1, 2017, and emission standards for SOx and NOx were to be issued by MoEF & CPCB by December 31, 2017.

30. Based on the data received the subject factory is in violation of the Supreme Court / CPCB direction because it is (a) feeding untreated petcoke directly, (b) not employing required controls on volatile emissions / afterburners / flaring, (c) failing to meet emission limits, and thereby contributing to ambient air pollution, public-health risk, and environmental degradation.

31. I therefore, request that the Hon'ble Court grant injunctive relief / direction requiring the factory to immediately cease use of untreated petroleum coke, install pre-calcination / gasification or other equivalent treatment, provide emissions control (flare, afterburner, baghouse / ESP / scrubbers) and comply with the monitoring and reporting obligations as per CPCB / MoEF / Supreme Court orders.

A capacitive Presentation of Carborundum Universal Limited, Nalukettu, Thrissur, Kerala and

**Volga Abrasive Factory Russia**

**Volga Abrasive Factory, Russia**

**Picture 1**

**Gases collecting system**

**System Aerial view of the Volga Abrasive Factory**

Picture 2

**The fernace with hood system**

**Carborundum Universal Limited, Nalukettu**

**Picture 3**

A capacitive Presentation of Carborundum Universal Limited, Nalukettu, Thrissur, Kerala and
**Volga Abrasive Factory Russia**

| | **Volga Abrasive Factory, Russia** | **Carborundum Universal Limited, Nalukettu** |
|---|---|---|
| 1 | There are massive differences in the hood system that captures the volatile gases and it is process and sent out through the industrial stack. | The installed hood system is a eyewash to show the complince. It is effective as we experince the intence smell and pollution. |
| 2 | It can totally absorb the gases and polluting agents | It easy escap to the open air |
| 3 | It a scientific work | It is a pure patch-up work |
| 4 | It has the capacity to totally cover the furnace so that the pollutant gases do not go in the open air | It has no such system to capture the gases. |

A capacitive Presentation of Carborundum Universal Limited, Nalukettu, Thrissur, Kerala and
**Volga Abrasive Factory Russia**

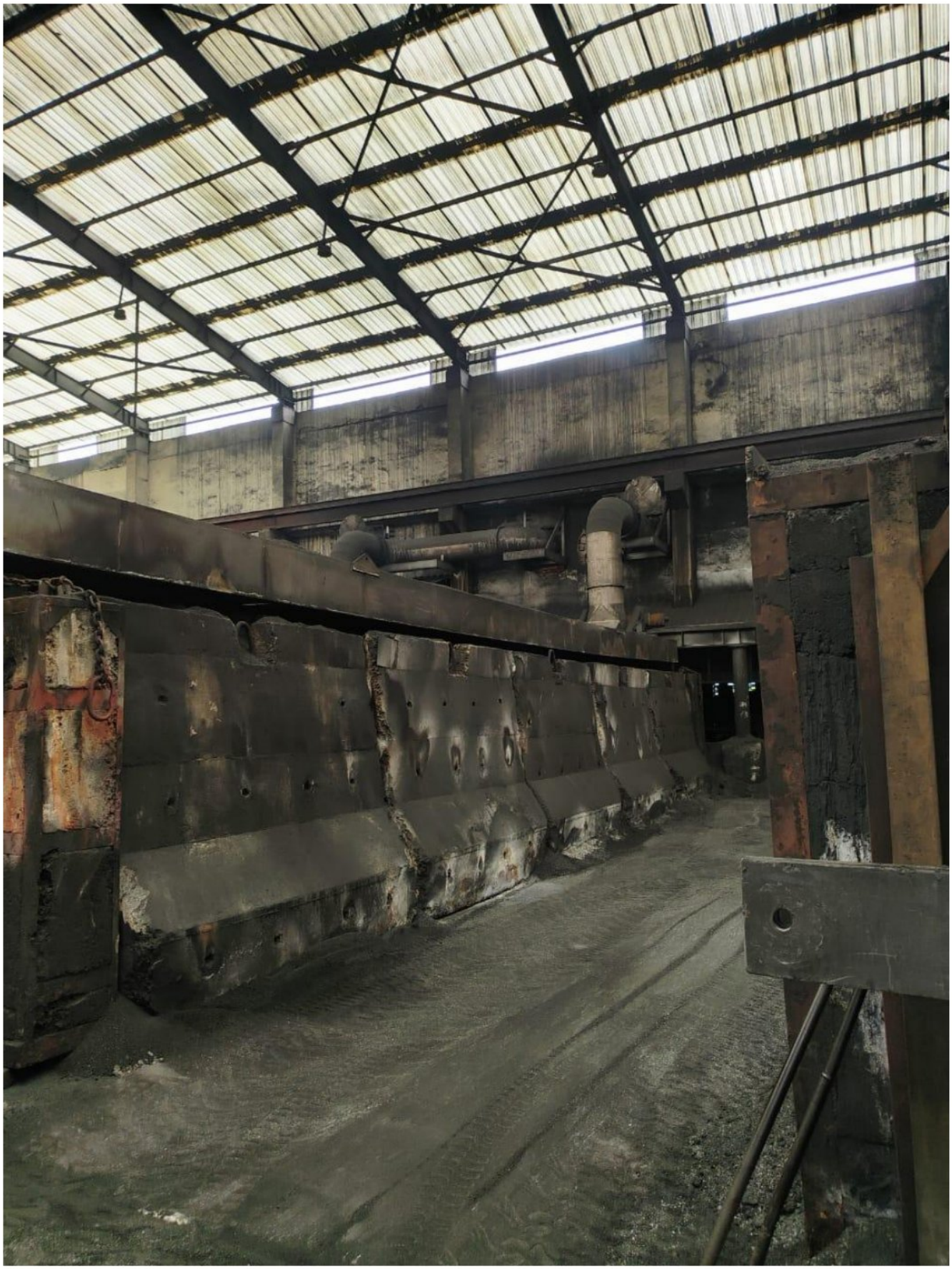
**Annexture2**

The 6th respondent has stated that the factory is fully equipped but the phots of the furnaces plant shows unscientific work done and how shabby they are in addressing the issue.

1) In the same report, Para 1 states that the unit informed vide letter dated 20.05.2025 that they have completed the modernization and resumed full activities. The hood that they have installed is so ineffective and unprofessional. The hood that they have installed is not competent to absorb the gases and it is mere eye wash. The installed hood system is total failure since we are experiencing the pollution. It is equivalent using a very small exhaust unscientific engineering work.
2) The report states that they have Cyclone separator but it removes particulates, not gases like $SO_2$. Despite the absence of all these how can the data show that everything is under the limit. It is a clear indication of the manipulation the data.
3) There is no mention of the mandatory installation of a system utilizing inert gases to prevent the burning of Petcoke. (Photographs of the furnace burning are attached.) Furthermore, there is no reference to the installation of a proper flaring system, and the unit does not have the required permission to install such a system.
4) The furnace plant is not insulated as it is directed in the consent letter
5) Water cooling is done only for-profit motive at the cost of the neighbourhood
6) They have not installed the **Flue Gas Desulfurization (FGD system to prevent the emission of gases**
7) The furnace plant is an open hall with no safety measures
8) The photos of the furnace plant of Russian plant that is submitted in the annexture show the same phenomenon of Petcoke burning
9) Using petroleum coke (petcoke) as the carbon source in the Acheson process (typically used for producing silicon carbide) has specific chemical and environmental implications, particularly during the first 5 hours, which is when the peak of volatile release and gas emission occurs. Chemical and Process Implications of Using Petcoke in the Acheson Process.
10) Use of Banned Fuel in Violation of Environmental Norms: Petcoke, a highly polluting fuel that has been banned for combustion purposes, is being used in Silicon Carbide production under the pretext of being a “raw material,” despite the availability of multiple environmentally safer substitutes.
11) Former factory staff have testified that during the initial heating stages, the furnace area was unbearable due to heavy gas emissions. These emissions, with no effective scrubber or filtration system in place, were released directly into the open atmosphere. The factory permitted these gases to burn off without adhering to any proper flue-gas treatment systems or pollution control procedures.

Picture 1

In the pictures 1,2,3 and 4 it is evident that the opening at the roof and sides allow the emission of gases to the open. The Consent letter has clearly mentioned the need of enclosed area.



Picture 2

Picture 3

Picture 4

The open areas allow the escaping of the gases

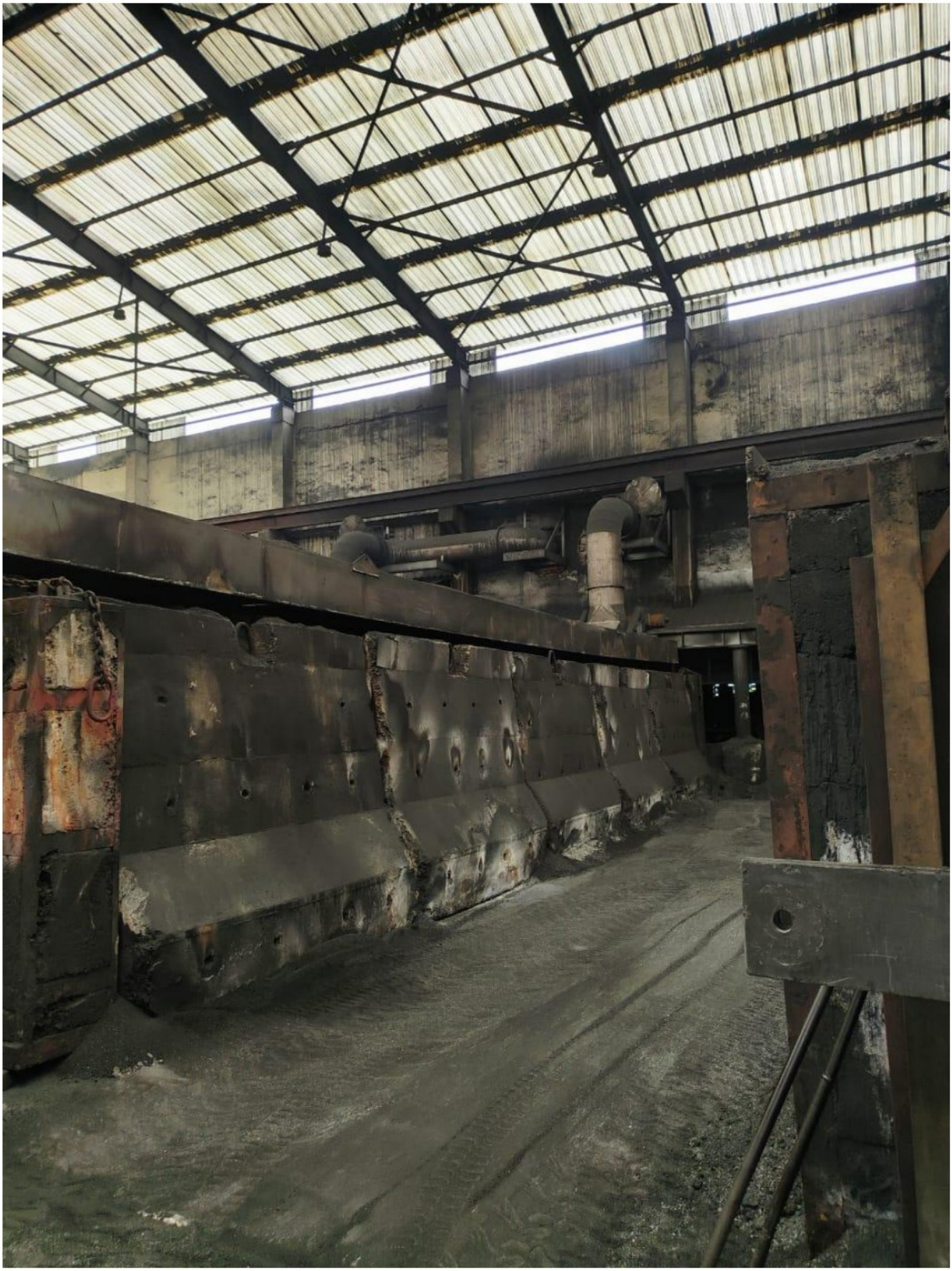
Picture 5

In the picture it is very evident that the burning of the Petcoke, It can burn at 600c. Despite water cooling done it is still burning inside. The picture Clearly shows the burnt Petcoke.

Picture 6

Picture 7

pictures 7 and 8 shows that Wrong method of designing hood to collect the gases and smoke. It is very evident that gases and fumes can easily escape. It is not a scientific work. This is really sketchy work foe eyewash the court



Picture 8

Picture 9

They have very unscientific set-up and way of operation of the furnace

Picture 10

BPL Kochi Refinery – Bharat Petroleum Corporation Ltd. has issued a clear safety direction stating: "Do not use water on fires in enclosed spaces due to the potential for hydrogen and carbon monoxide production." However, it has come to notice that the refinery is engaging in water cooling, which leads to the condensation of sulphur.

Annexure -3

☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairperson: 2318150 Member Secretary: 2318151
e-mail: chn.kspcb@gov.in; ms.kspcb@gov.in FAX: 2318152 web: kspcb.kerala.gov.in
KERALA STATE POLLUTION CONTROL BOARD
കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്
Pattom P.O., Thiruvananthapuram – 695 004
പട്ടം പി.ഒ., തിരുവനന്തപുരം - 695 004

KSPCB/1329/2023-EE-1 Dated: 29/08/2025

From

The Member Secretary

To

The Environmental Engineer
District Office
Thrissur

Sub: - CPCB - Pubic complaint received regarding Environmental Pollution caused by M/s Carborundum Universal Limited, Thrissur -reg.

Ref: - 1) CPCB email dated 14/08/2025 enclosing complaint by Sri.Jonatt Jose
2) Letter from KSCSTE dated 14/08/2025 enclosing complaint by Sri.Jonatt Jose

Sir,

Copy of the complaint by Sri. Jonatt Jose received through ref cited (1) &(2) is enclosed for urgent necessary action and direct reply to the complainant under intimation to this office.

Yours faithfully,

**For MEMBER SECRETARY**

Copy to :

Sri. Jonatt Jose

Email : jonattjose@gmail.com

SP 18/8/25 A8825 18/8/2025

18 AUG 2025

THIRUVANANTHAPURAM

**Kerala State Council for Science, Technology and Environment**
Sasthra Bhavan, Pattom P.O. Thiruvananthapuram - 695 004, Kerala State, India.
Tel: 0471-2548200-09, EVP – 2543557, 2548222,
MS – 2534605, 2548220, CoA – 2543556, 2548248
Fax: 0471-2540085, 2534605 e-mail: mail.kscste@kerala.gov.in,
www.kscste.kerala.gov.in

**No. KSCSTE/1265/2023-C4**

**Thiruvananthapuram**
**Dated: 14-08-2025**

To,

The Chairperson,
Kerala State Pollution Control Board,
Thekkamoodu Rd,
Pattom, Thiruvananthapuram - 695004

Sir/Madam,

Sub:- KSCSTE - Complaint of Jonett Jose regarding the environmental pollution and manipulation of Industrial company named Carborundum Universe - forwarding - reg

Ref:- Petition of Jonett Jose

Inviting attention to the reference cited, I am to forward herewith a copy of the same for your information and necessary action.

Yours Faithfully,
A Sabu
MEMBER SECRETARY

EG

JR 18/8 for chn

Approved for Issue

Signed by
Lakshmi T
Date: 14-08-2025 14:48:51

Section Officer

**Fwd: Public Complaint regarding Environmental Pollution caused by company named Carborundum Universe Located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.**

**Sreekala S** < chn.kspcb@gov.in >

Sat, 16 Aug 2025 5:13:34 PM +0530

To "CRUCRU"<cru.kspcb@kerala.gov.in>,"kspcbhoconsent2025"<kspcbhoconsent 2025@gmail.com>

---

**From:** "CPCB Regional Directorate Bengaluru" <zobangalore.cpcb@nic.in>
**To:** "Sheela A.M" <ms.kspcb@gov.in>, "Sreekala S" <chn.kspcb@gov.in>
**Cc:** jonattjose@gmail.com
**Sent:** Thursday, August 14, 2025 6:22:01 PM
**Subject:** Fwd: Public Complaint regarding Environmental Pollution caused by company named Carborundum Universe Located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

Sir/Madam,

This has reference to the trailing mail forwarded by CPCB Delhi in connection to the pubic complaint received regarding Environmental Pollution caused by company named Carborundum Universe Located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

In this regard, a copy of complaint received from Mr. Jonatt Jose, on the above matter is enclosed herewith for your reference. It is requested that issues raised by the complainant may please be investigated/examined and necessary action be taken at the earliest.

It is also requested that the Action Taken Report may please be sent to the complaiannt with a copy to this office at the earliest, please.

Regards

**CPCB Regional Directorate, Bengaluru / सीपीसीबी क्षेत्रीय निदेशालय, बेंगलुरु**

Nisarga Bhawan,A-Block, 1st & 2nd Floors / निसर्ग भवन, ए-ब्लॉक, पहली और दूसरी मंजिल
Thimmaiah Road, 7th D-Main / तिम्मैया रोड, 7वां डी-मेन
Shivanagar, Bengaluru-560079 / शिवनगर, बेंगलुरु-560079
Telephone / टेलीफ़ोन: 080-23233739, 23233827, 23233996
Fax / फैक्स: 080-23234059

---

========== Forwarded message ==========
From: Public Complaints <prc.cpcb@nic.in>
To: "Sreekala"<ms.kspcb@gov.in>
Cc: "Chandra Babu Jathikartha"<jcb.cpcb@nic.in>, "CPCB Regional Directorate

Bengaluru"<zobangalore.cpcb@nic.in>
Date: Thu, 14 Aug 2025 17:46:14 +0530
Subject: Public Complaint (Kerala)
========== Forwarded message ==========

Sir/ Madam,

I am directed to forward attached complaint for investigation and necessary action, under intimation to this office, please.

Regards,

Public Complaint Cell
MS Section
Central Pollution Control Board,
Delhi

**1 Attachment(s)**

KERLA 26667.pdf
1.3 MB

From

Mr. Jonatt Jose,
S/o. Jose
Choorackal House,
Nalukettu P.O., Nalukettu
Thrissur District, Pin: 680 308
Mob No. 9400165674
E-mail : jonattjose@gmail.com

To,

1) Joint Secretary
Prime Minister's Office, South Block, New Delhi- 110011

2) Shri. Pinarayi Vijayan
Chief Minister of Kerala 3rd Floor, North Block,
Government Secretariat Thiruvananthapuram – 695001

3) Smt. Sarada Muraleedharn
Secretary of Kerala, Government of Kerala,
Secretariat, Thiruvananthapuram-695001

4) The Central Public Information Officer,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar, Delhi – 110 032

5) The Secretary,
The Ministry of Environment & Forests & Climate Change
Paryavaran Bhavan, CGO Complex,
Lodhi Road, New Delhi 110 003.

6) Kerala Director of Factories & Boilers,
Suraksha Bhavan, Kumarapuram,
Medical College P.O. Thiruvananthapuram, Kerala - 695 011

7) Chief Environmental Engineer, KSCSTE
Head Office, Pattom PO,
Thiruvananthapuram, Kerala – 695004

Kerala
26667

8) Factories and Boiler Inspector, Irinjalakuda
IInd Floor, Mini Civil Station, Irinjalakuda
Thrissur, Kerala – 680125

9) The Secretary,
Directorate of Environmental & Climate Change,
(DoECC), 4th Floor, KSRTC Bus Terminal,
Thampanoor, Thiruvananthapuram, Kerala – 695001

केंद्रीय प्रदूषण नियंत्रण बोर्ड
05 AUG 2025
3428
Central Pollution Control Board

10) Pollution Control Officer,
Majestic Square Building, 3rd Floor,
Paravathani P.O, Thrissur, Pin: 680655

SAKF
1348

**Mass Petition:** Complaint letter about environmental pollution caused by Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

11) The Hon'ble Opposition Leader of Kerala
Sri. V. D. Satheesan
No.739- 3rd Floor, Assembly Building,
Legislature Complex, Vikas Bhavan P.O,
Thiruvananthaprum-33, Kerala

12) The Health Inspector,
Thrissur District office of Health,
5th Circle, North Bus Stand,

13) The District Collector,
Thrissur District, District Collector Office,
1st Floor, Civil Station,
Ayyanthole, Thrissur- Pin: 680003

14) Chairman
Ex officio Principal Secretary,
Dept. of Science & Technology Executive Vice President,
KSCSTE Head Office, Pattom PO,
Thiruvananthapuram, Kerala - 695004.

15) Member Secretary, KSCSTE
Head Office, Pattom PO,
Thiruvananthapuram, Kerala - 695004.

16) Carborundum Universal Limited
'Dare House', No.234, N.S.C.Bose Road,
Parrys, Chennai - 600001
Tamil Nadu, India.
cumigeneral@cumi.murugappa.com

17) Public Information Officer & Assistant
Environment engineer, KSCSTE
Majestic Hypermarket, 3rd floor,
Paravattani, Ollukkara P.O.,
Thrissur, Kerala - 680655

18) Shainy Shaji
Member of Ward No. 6
Ward No. 6 Valungamury
Koratty Grama Panchayat (Thrissur)
Koratty Bazar Rd,
Near Devamatha Hospital,
Koratty, Kerala 680308

19) Primary Health Centre, Nalukettu
Hospital in Kizhakkummuri,
Nalukettu Rd, Nalukettu, Koratty,
Kerala 680308

**Mass Petition:** Complaint letter about environmental pollution caused by Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

3

20) Smt. Veena George
Minister for Health, Kerala
Room No. 701
7th Floor, Annexe-2
Secretariat, Thiruvananthapuram– 695001

**Subject: Complaint about environmental pollution caused by company named Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.**

Respected Sir/Madam,

I, Jonatt Jose, and the residents of Nalukettu, Vlangamuri, and Palappilly of Kizhakkumuri Thaluk, Thrissur District, Kerala, would like to bring to your urgent attention a serious environmental issue affecting our communities. Carborundum Universal Limited, located at Nalukettu P.O., Thrissur District, has been causing alarming levels of air and environmental pollution due to its continued use of banned petroleum coke as part of its manufacturing process. This factory, established in the year 1985 and currently operating in the 6th ward of Nalukettu, is situated at the center of our densely populated locality. Hundreds of families, many of whom have been residing here for generations, are now facing severe health and environmental consequences due to the emissions and pollutants released by the factory.

The use of petroleum coke, which is a known hazardous substance, poses a significant threat to public health and violates established environmental norms. The air quality has visibly deteriorated, with residents reporting breathing difficulties, persistent respiratory illnesses, and a noticeable decline in the quality of life. The particulate matter and fumes from the factory are especially concerning given the proximity of homes, schools, and agricultural land in the surrounding area. We have lived in this region for generations and have always coexisted peacefully with local development. However, the unchecked pollution caused by Carborundum Universal Limited has reached a level where immediate and strict action is necessary

Silicon carbide is manufactured by this company through a chemical process involving the combustion of raw materials such as silica, petroleum coke, and quartz. The furnace operates at temperatures ranging from 1200 to 1400 degrees Celsius over a continuous 48-hour cycle. This

4

process emits a pungent and intolerable odor as the materials are burned. Petroleum coke is a key component in this manufacturing process. During combustion, various harmful pollutants are released into the atmosphere, including carbon dust, sulphur compounds, carbon dioxide, carbon monoxide, and nitrogen-based gases. These emissions have a direct impact on the health and well-being of residents living near the facility.

Local communities are increasingly suffering from persistent health problems such as coughing, respiratory disorders, headaches, skin irritation, allergic reactions, memory loss, vomiting, and insomnia. These symptoms are attributed to prolonged exposure to the toxic fumes and gases generated by the plant. The situation has been further exacerbated by the company's accelerated production rate and the rapid cooling process used in manufacturing. Additionally, the corrosive nature of the emitted chemicals has caused visible damage to surrounding iron structures, indicating the severity of environmental degradation. We, the residents of the area, are enduring continuous and worsening health issues, particularly respiratory ailments and are forced to live under hazardous and unsafe conditions due to the ongoing operations of this industrial facility.

The right to live in a pollution-free environment is an essential component of the fundamental right to life guaranteed under Article 21 of the Constitution of India. Residents of Nalukettu, Vlangamuri, and Palappilly particularly Mr. Jonatt and his family have been raising serious concerns about the hazardous environmental conditions caused by the nearby factory for over a decade. Despite repeatedly approaching Panchayat Presidents, local Ward Members, and Members of the Legislative Assembly (MLAs), no effective or meaningful action has been taken to address these grievances.

The continuous operation of the factory has disrupted our daily lives, severely affected our sleep, and led to a steady deterioration of our health. In the initial years, the factory management claimed that the manufacturing process only involved the use of electricity to burn silica and carbon in the furnace. During that period, the local residents did not experience significant health-related issues. However, over time, there has been a significant and troubling shift in operations. The company has replaced electricity with petroleum coke (Petcoke) a banned and hazardous material—as a primary raw material. Through a process known as Pyroprocessing, Petcoke is heated at temperatures ranging from 400 to 600 degrees Celsius, where it not only serves as a raw material

temperatures ranging from 400 to 600 degrees Celsius, where it not only serves as a raw material but also acts as a fuel. This change was reportedly made to reduce operational costs and maximize profits.

The use of Petcoke has introduced serious environmental and health hazards. It results in the release of sulphur emissions and carries the risk of water contamination through runoff containing heavy metals like nickel and vanadium, both byproducts of Petcoke refining and storage. The impact of these pollutants on human health and the surrounding ecosystem is deeply alarming. We, the affected residents, continue to suffer the consequences of unchecked industrial practices and demand immediate intervention to safeguard our constitutional right to a clean and healthy environment.

Despite multiple complaints by local residents regarding severe environmental pollution and health hazards, Carborundum Universal Limited continues its operations in violation of environmental norms. Following sustained public pressure, an Ambient Air Quality Monitoring System (a continuous air pollution measurement device) was finally installed within the factory premises. However, it has come to our attention that the factory has set up high-powered air blowers to intentionally redirect polluted fumes and emissions away from the monitoring system, thereby artificially reducing recorded pollution levels.

This act appears to be a deliberate manipulation intended to mislead regulatory authorities by generating false data that inaccurately reflects a low pollution rate. Such a cover-up makes a mockery of the air quality monitoring process, deceives the Pollution Control Board, and puts the lives of local citizens at continued risk. In response to public outcry, instead of addressing the core environmental violations, the company has reportedly filed police cases against residents who have raised complaints. This is a clear attempt to intimidate and silence the affected community, violating their rights and discouraging further resistance. Officials from the Health Department and Pollution Control Division, including Mrs. Soumya A.S., Public Information Officer and Assistant Environmental Engineer at KSCSTE, have personally visited the surrounding residences and acknowledged the health hazards. Additionally, responses received through the Right to Information (RTI) Act confirm that petroleum coke (Petcoke) is being actively used in the manufacturing process at this facility.

As per the information obtained:

- **Silicon and petroleum coke are mixed in specific proportions and burned using electricity at 600–700°C.**

- **Once Petcoke reaches its flash point, it acts as fuel, reducing the use of electricity.**
- **This process helps the company generate higher profits by avoiding the cost of electricity, but causes significant loss of revenue to the Kerala State Electricity Board.**
- **Petcoke combustion releases toxic gases such as carbon dioxide, carbon monoxide, and airborne carbon particles, which are known to cause respiratory diseases, asthma, and even cancer.**
- **The corrosive gases emitted are also damaging iron structures in the vicinity, visibly proving the impact of pollution on both human health and infrastructure.**

There is reasonable suspicion that similar illegal practices are being carried out at the company's furnace facility in Kalamassery, which urgently requires a thorough investigation. Local medical professionals have advised many residents to relocate due to the area being unfit for human habitation. This is a serious and distressing development. The combustion of petroleum coke, a banned substance under the orders of the Hon'ble National Green Tribunal, is illegal and dangerous.

We urge the concerned departments especially the Factory Inspector, Pollution Control Board, and District Administration to take immediate and firm action to:

1. **Stop the use of Petcoke at the Nalukettu facility and enforce the Supreme Court's ban on its use in Kerala.**
2. **Shut down operations of Carborundum Universal Limited until it complies with environmental regulations.**
3. **Investigate the manipulation of air quality monitoring systems and prosecute those responsible.**
4. **Examine the operations of the company's Kalamassery plant for similar violations.**
5. **Ensure accountability and protection for whistleblowers and local residents.**

This complaint is made in good faith to safeguard our constitutional right to a pollution-free environment under Article 21 of the Constitution of India. We implore your office to uphold justice and take urgent action to protect the people and environment of this region. Please find the signature of the victims and a detailed study of the issues we are facing.

## SUMMARY OF VIOLATIONS COMMITTED BY CARBORUNDUM UNIVERSAL LIMITED PLANT AT NALUKETTU

We would like to bring to your notice the number violation and negligence of the concerned authorities. These data show the seriousness of the issue and repercussion it is causing to our residing area. Kindly take this matter into serious consideration.

1. **Non-Installation of Flue Gas Desulphurization System:** Carborundum Universal Limited, Nalukettu, has failed to install, **by the order of National Green Tribunal Principal Bench New Delhi Petcoke,** the prerequisite Flue Gas Desulphurization System with a Sulphur ($SO_2$) emission removal efficiency greater than 90% over the past 40 years. (Annexure 1 & 2).

2. **Overlooking NGT Court Order:** The Kerala State Pollution Control Board (KSPCB) has disregarded the order of the National Green Tribunal (NGT) and issued a consent letter to Carborundum Universal Limited, Nalukettu, permitting the use of Petcoke as a raw material despite the absence of a Flue Gas Desulphurization System. KSPCB needs to make proper examination of the consent letter. (Annexure 1,2 & 3).

3. **Prohibited Use of Petcoke: Petcoke, a highly polluting banned fuel, is being used in Silicon Carbide production in the name of raw material, despite the availability of multiple substitutes, which contravenes environmental guidelines. How can it be used in the open furnace in the name of raw material. (Annexure – 1 & 3)**

4. **Non-Treatment of Petcoke: As per National Green Tribunal Principal Bench, New Delhi Petcoke is not being treated via flue gas Desulphurization/ degasification/ dehydrogenation processes to remove pollutant gases before use, and these gases are not being flared as required by gas flaring rules. The Said factory doesn't have the required system.** (Annexure 1, 2 & 3)

5. **Violation of Consent Conditions:** The consent letter Reply by R2 in OA No 39 of 2024(SZ)(Mr. JONATT JOSE Vs The Secretary. MOEF & CC and Ors) specifies that "Ordinary coke shall be used instead of Petcoke." However, Petcoke continues to be used as a raw material. (Annexure 3 & 4)

**Mass Petition:** Complaint letter about environmental pollution caused by Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

6. **Absence of Necessary Chimney:** The factory has not installed a necessary chimney for the furnace for the past 40 years, violating Chapter 4, Paragraph 5(iv) of the Air (Prevention and Control of Pollution) Act, 1981. (Annexures 5).

7. **Lack of Industrial Stack:** Carborundum Universal Limited, Nalukettu, does not possess an industrial stack, yet KSPCB has consistently renewed the plant's operational consent, including during ongoing litigation. (Annexure 4 & 5)

8. **Negligence by KSPCB:** KSPCB has failed to take necessary follow-up actions to ensure compliance with regulations, thereby allowing ongoing pollution by Carborundum Universal Ltd, Nalukettu, demonstrating gross negligence. (Annexures 3).

9. **KSPCB's Inaction Post-Explosion:** KSPCB has not conducted a substantial investigation into an explosion at Carborundum Universal Limited's plant in Kalamassery, Kochi, which damaged 50 neighbouring houses, further demonstrating negligence. (Annexures 6).

10. **Violation of Dust and Noise Control Operations:** Contrary to the 2013 consent letter from KSPCB, Paragraph 4.7, **which mandates that all dust or noise-producing operations be contained within closed and insulated premises,** the furnaces are housed in an open hall without adequate scrubber systems or pollution control measures. (Annexures 4).

11. **Improper Scrutiny of Petcoke Use: Petcoke, highly inflammable and capable of igniting at 400 - 700°C, is subject to inadequate scrutiny by KSPCB to verify its use as raw material rather than as fuel, which raises significant safety concerns. How can a fuel be used in an open furnace and say it is used as only raw material. It is completely a wrong procedure.** (Annexures 3 & 9).

12. **Petcoke is burning in the Acheson Furnace and subsequent violation: Petcoke, highly inflammable and capable of igniting at 400 - 700°C. The furnace reaches up to 2500c in an open furnace allowing the heated Petcoke to be in contact with the Oxygen resulting ignition and burning. Petcoke can burn up to 2500 c and thus petcock is serving the role as fuel. They do not use inert gases to prevent the burning of the Petcoke. The phots of furnace burning is attached. They do not have any proper flaring system and do not have permission to install flaring system.** (Annexures 7 , 9 & 17).

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13. **It serves as both a feedstock and a source of heat in the production process. The high carbon content of Petcoke, which can exceed 90%, makes it an effective fuel for generating the necessary temperatures in industrial furnaces used for SiC synthesis. Therefore, it is used as both as fuel and source of raw material in the pretext of only as raw material. (Annexure -7, 9 & 8)**

14. **Respiratory Health Hazards:** The processing and handling of SiC ingot products, including their chemical purification and grinding to 1–10 μm particle sizes, have been reported to cause respiratory damage and lung cancer. (Annexure 8, 9 & 18).

15. The International Agency for Research on Cancer is an intergovernmental agency forming part of the World Health Organization of the United Nations, whose role is to conduct and coordinate research into the causes of cancer, has identified the incidents of cancer in those who are associated with silicon carbide production. (Annexure 18).

16. **Dual Usage of Petcoke:** Petcoke, with carbon content exceeding 90%, is being used ambiguously as both fuel and feedstock in SiC production, contrary to specified regulations. (Annexure 7).

14. **Emission of Pollutant Gases:** The thermal decomposition of 20 tonnes of Petcoke in the Acheson furnace emits various pollutant gases in alarming quantities:
    - Carbon Dioxide (CO2): 50 tonnes
    - Carbon Monoxide (CO): 10 tonnes
    - Volatile Organic Compounds (VOCs): 2 tonnes
    - Hydrogen (H2): 1 tonne
    - Sulfur Dioxide (SO2): 0.4 tonnes (400 kg) An Ambient Air Quality System near the furnace has recorded these alarming emission levels. (Annexure 10).

15. **Continuous Operation Without Pollution Safety Measures:** Carborundum Universal Ltd. Nalukettu, has operated furnaces for years without necessary pollution safety measures.

16. **Alarming Ambient Air Quality:** The ambient air quality monitoring system at Carborundum Universal Limited, Nalukettu, indicates peak sulphur content as high as 194, reflecting dangerously high pollution levels. (Annexure 11).

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17. **Temporary Ban of use of Petcoke in the production of Silicone Carbide:** as per the report submitted by the 6th respondent on 8/2/2024 of this case has clearly mentioned two conditions they are.

    1) Ordinary Coke shall be used instead of Petcoke
    2) Allowing the use of Petcoke in the production of Silicone Carbide can be decided after receiving advice from CPCB (Annexure 4).

17. **Inspection Findings by KSPCB:** On August 9, 2024, KSPCB representatives from the Thrissur branch conducted an on-site inspection and confirmed the absence of a real-time air quality monitoring system and detected foul smells. The health inspector and the local people have stated the fact of smell and pollution in the Amrita TV Reporting. (Annexure 15).

18. **Violation of NGT Orders:** Despite the National Green Tribunal Principal Bench, New Delhi's order in Original Application No. 138/2019 (I.A. No. 65/2019, I.A. No. 686/2019 & I.A. No. 762/2019) allowing only the use of Calcinated Petcoke as a feedstock, raw Petcoke is being used without proper scrubber systems, effluent plants, or industrial stacks. (Annexure 1).

19. **Call for Temporary Stoppage:** A temporary stoppage or stay order on Petcoke usage in the furnace is requested due to the absence of required pollution mitigation systems, posing significant health risks to residents within a 3 - 5 KM radius. A signed memorandum from immediate neighbours is attached.

20. **Pollution from Furnace Water Cooling:** Water cooling of the furnace produces significant pollution, including emissions of Hydrogen Sulfide (H2S).

21. **Foul Smell Complaints:** Residents report frequent foul smells of SO2 and Hydrogen Sulfide (H2S), corroborated by ambient air quality monitoring (Annexure 15).

22. **Required Ambient Air Monitoring:** An ambient air quality monitoring system with an alert alarm must be installed in the industrial stack and displayed prominently for public visibility, in accordance with the 2013 consent letter conditions.

23. **Immediate Health and Environmental Study:** A thorough study of air and water quality and resident health around Carborundum Universal Limited, Nalukettu, is urgently required and must be reported to the court.

**Mass Petition:** Complaint letter about environmental pollution caused by Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

11

24. **Ongoing Operation Without Pollution Safety Measures:** For years, Carborundum Universal Ltd, Nalukettu, has operated furnaces without the necessary pollution safety measures, facilitated by the negligence of various authorities, thereby endangering neighbourhood lives. (Annexure 3).
25. **Expert Committee Appointment Request:** The court is requested to appoint an expert committee to study the existing working conditions and pollution levels at Carborundum Universal Limited, Nalukettu. (Annexure 3).
26. **Visibility of Ambient Air Quality Monitoring:** An ambient air quality monitoring system with an alert mechanism must be installed in the industrial stack with the data displayed publicly, as required by the 2013 consent letter conditions.
27. **Negligence by Multiple Authorities:** The combined negligence of various departments, including boiler safety, district collector, KSPCB, and health departments, is a significant contributing factor to ongoing pollution and subsequent health issues. (Annexure 3).

24 **Rampant Lung cancer and health issues:** The International Agency for Research on Cancer is an intergovernmental agency forming part of the World Health Organization of the United Nations, whose role is to conduct and coordinate research into the causes of cancer, has identified the incidents of cancer in those who are associated with silicon carbide production in the Acheson furnace. There are several cases of Lung cancer for the people who worked in the factory and those who live within 2 km radius of the factory. Therefore, Petcoke must not be allowed in the production of the SIC in INDIA since it is not the only option for making SIC. The entire book has given a detailed explanation of the incidents of cancer as result of production of SIC from Petcoke. (Annexure- 18)

Yours sincerely, Jonath Jose

Residents of Nalukettu, Vlangamuri, and Palappilly and On behalf of the affected families and victims of pollution caused by Carborundum Universal Limited.

Kindly find the signature of the above-mentioned people.

Mass Petition: Complaint letter about environmental pollution caused by Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

| | Name | Ph No | Signature |
|---|---|---|---|
| 1 | [illegible] | 9995979830 | |
| 2 | Elamma Davis | 9061690806 | Elamma |
| 3 | Jose V.V | 9895269005 | |
| 4 | SUBRAMANIA | 9645-6669-74 | |
| 5 | [illegible] | 11 | |
| 6 | [illegible] | | |
| 7 | [illegible] | 8714270361 | Liyamol |
| 8 | [illegible] | 11 | Devangana |
| 9 | Manoj K M | 9846842336 | |
| 10 | [illegible] | 9633705572 | |
| 11 | Suma Rajesh | 8714735572 | Suma |
| 12 | Deepu K Gopi | 9847206926 | Deepu |
| 13 | Remya Deepu | 7034454010 | Remya |
| 14 | Rajamma Gopi | 9847206926 | Raj |
| 15 | [illegible] | 9605386990 | |
| 16 | [illegible] | | |
| 17 | [illegible] | 8086984434 | |
| 18 | [illegible] 9747369664 | | |
| 19 | Sheela Raju | 9747688346 | Sheela |

| | Name | Ph No | Signature |
|---|---|---|---|
| 20 | [illegible] N | 9946321850 | |
| 21 | [illegible] | 7034592487 | |
| 22 | [illegible] | 9048755856 | |
| 23 | [illegible] | | |
| 24 | Bindhu Dasan | 9562308331 | Bindhu |
| 25 | [illegible] | 9048094075 | |
| 26 | Ramakrishnan | 9048105222 | |
| 27 | Sajeevan | 9745099194 | |
| 28 | [illegible] | 9445109014 | |
| 29 | Anjana Sajeevan | 9072105417 | |
| 30 | Suria babu | 9497098146 | |
| 31 | Babu. P.K. | 9496566269 | |
| 32 | Mathew M.T. | 9645323568 | |
| 33 | Rosin x unnikan | 9048064718 | |
| 34 | Savitha Haridas | 8078906455 | |
| 35 | Sharath.K.das | 8089226321 | |
| 36 | [illegible] | 9656840190 | |
| 37 | Jomy mathew | 9349915105 | |
| | | | |

14

| | Name | Ph No | Signature |
|---|---|---|---|
| 38 | T. K. [illegible] | 9446364465 | [illegible] |
| 39 | [illegible] | " | [illegible] |
| 40 | ANOOB | 8891559403 | [illegible] |
| 41 | BV [illegible] | | [illegible] |
| 42 | [illegible] | 9534764947 | [illegible] |
| 43 | Sruthinath P.Baby | 8156950527 | [illegible] |
| 44 | Sanika P. S. | 9061815929. | [illegible] |
| 45 | Sarath P.S | 9744520372. | [illegible] |
| 46 | Bindhu Sivaraman. | 8157010806. | [illegible] |
| 47 | Athira Sarath. | 9744520372. | [illegible] |
| 48 | Athichayan Vishu. | 8606136325 | [illegible] |
| 49 | Unnikrishnan V.P | 9645810686 | [illegible] |
| 50 | Shibu P.V | | [illegible] |
| 51 | Suniel K S | 9061329884 | [illegible] |
| 52 | Lathika | 9526738216. | [illegible] |
| 53 | [illegible] | " | [illegible] |
| 54 | A.K. Ramakrishnan | 9447813012 | [illegible] |
| 55 | Vijith | 9747433147 | [illegible] |
| 56 | Vignesh | 9497815423 | [illegible] |

15

| | Name | Ph No | Signature |
|---|---|---|---|
| 57 | Sabu T. V | 9455421745 | |
| 58 | Amal Raj | 894-35889 83 | |
| 59 | Bilashmon.v.Perckuda. | 9645012542 | |
| 60 | Abhinandh p.u | 8129428321 | |
| 61 | Sanees h Ashokan | 9745297198 | |
| 62 | K.K. Ashokan | 9946333067 | |
| 63 | Sreesha P U | 8304808094 | |
| 64 | Rajan. M. | 9946894022 | |
| 65 | Benny. KT | 8086675723 | |
| 66 | Paul. PT | | |
| 67 | [illegible] | | |
| 68 | PM [illegible] | | |
| 69 | [illegible] | | |
| 70 | BABU- | | |
| 71 | Aly Sasidharan | | |
| 72 | ALFIN SHAJI | 7025776 13 | |
| 73 | [illegible] | 9846802603 | |
| 74 | Thara | | Thara |
| 75 | Kala Sreenivasan | 9496851020 | Kala |
| 76 | Mauthal C.S | | |

**Mass Petition:** Complaint letter about environmental pollution caused by Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

16

| | Name | Ph No | Signature |
|---|---|---|---|
| 77 | [illegible] | 9946246362 | |
| 78 | [illegible] | 8078583904 | |
| 79 | [illegible] | 9400937237 | |
| 80 | [illegible] | 9400937237 | |
| 81 | [illegible] | 8078583904 | |
| 82 | [illegible] | 9400937237 | |
| 83 | [illegible] | 9656720076 | |
| 84 | LABISH | 7356078087 | |
| 85 | [illegible] | 8943605789 | |
| 86 | Aditya | 9874725577 | |
| 87 | Joseph | 9400165674 | |
| 88 | Mary chriy | 9633692894 | |

**Mass Petition:** Complaint letter about environmental pollution caused by Carborundum Universe located in the 6th Ward of Koratty Gram Panchayat of Thrissur District.

Annexure - 4

**F. No. Q-16016/79/2025-CPA**
**GOVERNMENT OF INDIA**
**MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE**
**(CP Division)**

2nd Floor, Prithvi Wing,
Indira Paryavaran Bhawan
Aliganj, Jor Bagh Road
New Delhi

Dated: 25th August, 2025

To

**The Member Secretary**
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi- 110032

**Subject: Request for Urgent Action against Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala –reg.**

Sir,

Please find enclosed a copy of representation dated 15.08.2025 from Shri Jonatt Jose, S/o Shri Jose, Choorackal House, Nalukettu P.O., Dist- Thrissur, Kerala regarding hazardous industrial practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala.

2. It is requested to kindly take appropriate action in the matter and action taken report may please be forwarded to the complainant directly, under intimation to this Ministry.

Yours faithfully,

Encl: As above

Sonu Singh

**(Dr. Sonu Singh)**
Scientist 'E'
sonu.singh@gov.in

From

Mr. Jonatt Jose,
S/o. Jose
Choorackal House,
Nalukettu P.O., Nalukettu
Thrissur District, Pin: 680 308
Mob No. 9400165674
E-mail : jonattjose@gmail.com

**To**

1) Shri. BHUPENDER YADAV
Division/Office: O/o HMEF&CC
Designation: Minister of Environment, Forest and Climate Change
Email: mefcc.@gov.in

2) Shri. KIRTI VARDHAN SINGH
**Division/Office:** O/o HMoS
**Designation:** Minister of State for Environment, Forest and Climate Change
**Email:** mos.kvs@gov.in

3) Mr. Amar Singh
Division/Office: O/o HMEF&CC
Designation: Private Secretary
Email: ps2mefcc@gov.in

Seq-in mtg. ASC NPG)

4) Shri Sukant Vatsa
Division/Office: O/o HMoS
Designation: Private Secretary
Email: sukant.vatsa@gov.in

5) Mr. TANMAY KUMAR
Division/Office: O/o Secretary (EF&CC)
Designation: Secretary (EF&CC)
Email: secy-moef@nic.in

6) Mrs. RAJASREE RAY
**Designation:** Economic Advisor
**Email:** rajasree.r@nic.in

7) Mr. Amit Love
Scientist E, Hazardous Substances Management (HSM), O/o SE
Ministry of Environment, Forest and Climate Change
Email: amit.love@nic.in

8) Dr. SONU SINGH
Division/Office: Control of Pollution (CP), O/o SE (Sonu Singh)
Designation: Scientist E
Email: onu.singh@nic.in

**Subject:** *Request for Urgent Action Against Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala*

**Respected Sir,**

I am **Jonatt Jose**, a resident of Nalukettu P.O., Thrissur District, Kerala. My family, consisting of my wife, three children, and my elderly parents, has lived in this area for generations. I am writing this letter to raise a grave concern that affects not only my family but also the lives and health of over a hundred local residents in the vicinity of **Carborundum Universal Limited**, which operates in the 6th Ward of Nalukettu, just 100 meters from my home.

The factory, established in 1985, manufactures **silicon carbide** through a chemical process involving **petroleum coke (petcoke), silica, and quartz**, which are burned at extremely high temperatures (1200°C – 2400°C). The combustion process emits **toxic gases**, including **carbon dust, sulphur compounds, carbon monoxide, carbon dioxide**, and **nitrogen-based pollutants**.

Over the years, this has resulted in alarming health consequences for the local population, including:

- Chronic respiratory diseases, including asthma and lung infections
- Persistent coughing, vomiting, and allergic reactions
- Headaches, memory loss, skin irritations, and sleeplessness
- More than **50 reported deaths** due to respiratory-related issues, including my grandfather

Despite repeated complaints over the past **10 years** to local authorities including Panchayat members, MLAs, and Pollution Control Board officials **no action** has been taken. Over 80 local residents have signed a **mass petition**, a copy of which has already been submitted to concerned authorities. I was working in the ship but now I have left my job last 3 years and investing my time, money and energy to conscientize the local people about the seriousness of the issues faced by the communities.

**Key Environmental Violations & Concerns:**

1. **Illegal use of Petcoke:** The Hon'ble Supreme Court of India, through orders in W.P. No. 13029/1985 (M.C. Mehta v. Union of India) dated 17-11-2017, and subsequent **National Green Tribunal (NGT)** orders dated 28-03-2019 and 04-07-2019 (O.A No. 67/2019, 138/2019), has clearly restricted the use of petcoke to specific industries such as **cement kilns, lime kilns, calcium carbide, and graphite electrode** sectors. **Carborundum Universal Ltd. does not fall under these permitted categories.**
2. **No proper pollution control systems in place**
    - No **industrial stack** or **effluent treatment plant (ETP)** as per RTI replies from the Kerala Pollution Control Board and Koratty Panchayat.
    - No **gas desulfurization system**, which is mandatory as per Supreme Court directions.
    - Unapproved use of **sulphuric acid** and flaring of toxic gases without any system to handle them safely.
3. **Manipulation of pollution monitoring:**
    - Installation of **air blowers** to redirect toxic fumes away from the **Continuous Ambient Air Quality Monitoring System (CAAQMS)** on factory premises.
    - Pollution readings from the CAAQMS are being **artificially suppressed**, and the display is not accessible to the public.
4. **Excessive Emissions & Environmental Damage:**
    - The company is reportedly burning **more than 45 MT/day** of petcoke, though their permission is for only **20 MT/day**.
    - This leads to estimated **sulphur emissions of 1800–3150 kg per day**, far beyond legal limits.
    - The pollution is corroding local structures and worsening climate change impacts.
5. **Labour Law Violations:**
    - Local and migrant workers are employed as **contract labour** in hazardous production zones.
    - Many are paid less than ₹700/day and denied basic labour rights.
6. **Health Reports & Professional Advice:**
    - Medical professionals have advised my family to relocate due to the **extreme health hazards** caused by the factory's emissions.

Despite our efforts and the acknowledgment of the pollution problem by **Mrs. Soumya A.S. (Assistant Environmental Engineer, KSCSTE)** and other officials, the company continues

to operate **without proper regulatory oversight or compliance**. Their response has often included **threats of legal action** against complainants instead of taking corrective measures.

**Request for Immediate Action:** We respectfully urge your office to:

- **Conduct a high-level environmental audit** of Carborundum Universal Ltd., including analysis of emissions, raw material usage, and safety systems
- Verify whether their operations are **permitted under current MoEF&CC, CPCB, and NGT guidelines**
- **Suspend or revoke licenses** if non-compliance is proven
- Direct the Pollution Control Board and Local Authorities to **cease operations** until all mandated environmental safeguards are implemented
- Investigate **labour exploitation** and ensure compliance with the **Factories Act and Minimum Wages Act**
- Ensure **transparency of CAAQMS data** to the public in real-time

This is not merely a local issue it is a matter of **public health, environmental justice, and compliance with national and international climate commitments**. The factory's practices are not only unethical but also blatantly illegal and in contempt of Supreme Court and NGT directives.

We hope that you will treat this matter with the **urgency and seriousness** it deserves. On behalf of the affected residents, I humbly request your intervention to protect our right to live in a clean and healthy environment, as guaranteed under **Article 21 of the Constitution of India**.

Thanking you, Yours faithfully,

Mr. Jonatt Jose,
S/o. Jose
Choorackal House,
Nalukettu P.O., Nalukettu
Thrissur District, Pin: 680 308
Mob No. 9400165674

15/08/25

Jonatt

**F. No. Q-16016/123/2023-CPA**
**GOVERNMENT OF INDIA**
**MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE**
**(CP Division)**
*****

2nd Floor, Prithvi Wing,
Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj
New Delhi- 110003

Dated: 4th October, 2023

To

**The Member Secretary**
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi-110032

**Subject: - Request to desist from using the petroleum Coke (banned material) in place of electricity and carbon which causes serious health hazards in the locality and also to install industrial steel Chimney to eject the gases, proper treatment plant to treat industrial effluents – reg.**

Sir,

Please find enclosed herewith a copy of grievance letter dated 16.08.2023 received from Shri Jonett Jose, Nalukettu, Thrissur, Kerala on the subject mentioned above.

2. It is requested to kindly take appropriate action in the matter and action taken report may please be forwarded to the complainant directly, under intimation to this Ministry.

Yours faithfully,

Sonu Singh

(**Dr. Sonu Singh**)
Scientist 'E'

Encl. as above.

Copy to: Shri Jonett Jose, S/o Jose residents at Choorakkal House, PO-Nalukettu Nalukettu, Dist-Thrissur- 680308 (Kerala) (Mobile No. 9400165674) – for information please.

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

**By Speed Post/Email**

**F. No. PI-14/1/2022-TECH-RD-BENGALURU/** 4156

**Dated 11.09.2025**

To

The Member Secretary
Kerala State Pollution Control Board
Head Office, Pattom, P. O.
Thiruvananthapuram - 695004, Kerala

**Sub: Public Complaint received regarding alleged Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala –reg.**

Madam,

Please find enclosed herewith a copy of the Public Complaint dated 15.08.2025 forwarded by MoEFCC vide letter dated 21.08.2025 with a request to examine the issues raised by Shri Jonatt Jose, S/o Shri Jose, Choorackal House, Nalukettu P.O., Dist- Thrissur, Kerala requesting action against the unit viz., M/s. Carborundum Universal Limited, Nalukettu, Thrissur, Kerala for alleged Illegal and hazardous industrial practices A copy of the MoEFCC letter dated 21.08.2025 which has already been forwarded by CPCB Delhi to Kerala State Pollution Control Board vide email dated 04.09.2025 for examination and for initiating further necessary action on the matter, is enclosed for ready reference and record please.

In view of the above, it is requested that the Action Taken Report on the above matter may please be arranged to the complainant, with a copy endorsed to CPCB Delhi and to this Regional Directorate for record, at an early date.

Yours faithfully

11/09/2025

**(J Chandra Babu)**
**Regional Director**

***Encl. : As above***

Receipt of Acknowledgement

No. DFB/2216/2025-G3

"SURAKSHA BHAVAN"

Office of the Director of Factories & Boilers

Kumarapuram, Medical College P.O

Thiruvananthapuram – 695011, Kerala

Telephone No. 0471 - 2441597

e-mail : directorate.fab@kerala.gov.in

website : www.fabkerala.gov.in

Dated:13-08-2025

To

Mr.Jonatt Jose,

S/o.Jose

Choorackal House

Nalukettu P.O, Nalukettu

Thrissur - 680308

(E-mail : jonattjose@gmail.com)

Sir,

Sub : Department of Factories & Boilers – Complaint against Carborundum Universal Ltd - Receipt of Acknowledgement - reg

Your complaint against Carborundum Universal factory, Thrissur has been received. The decision will be communicated to you as soon as possible. Please refer this receipt number for further correspondence

Yours Faithfully

Sd/-
Director of Factories & Boilers

Approved for Issue

**Signed by Sajeendran S**
**Date: 13-08-2025 10:45:41**
Junior Superintendent

**BHARAT PETROLEUM CORPORATION LTD.**
**KOCHI REFINERY**

# SAFETY DATA SHEET OF PETROLEUM COKE

## 1. CHEMICAL IDENTITY

| | | |
|---|---|---|
| Chemical Name : Petroleum coke<br><br>Chemical Classification : Flammable | | |
| Synonyms : Pet Coke<br>Trade Name : | | |
| Formula : | C.A.S.No.: 64741-79-3 | UN No.: NA |
| Regulated Identification | Shipping Name : NA<br>Codes/Label : NA<br>Hazardous waste I.D. : NA<br>Hazchem Code : 3WE | |

| HAZARDOUS INGREDIENTS: | C.A.S. No.: | Weight % |
|---|---|---|
| 1. Petroleum Coke | 64741-79-3 | 100 |
| 2. Sulfur Compounds: | Mixture | 1-6% |
| 3. Polycyclic Aromatic Hydrocarbons | Mixture | <0.1% |

## 2. PHYSICAL AND CHEMICAL DATA

| | |
|---|---|
| Boiling Point/Range $^0$C | NA |
| Physical State | Solid |
| Appearance | Black powder or solid |
| Vapor pressure | NA |
| Melting/Freezing Point $^0$C | NA |
| Odor | Slight hydrocarbon |
| Vapor Density (Air=1) | 1.7 |
| Solubility in water @ 30$^0$C | Insoluble |
| Others | NA |
| Specific Gravity(Water = 1) | 2.07 |
| pH (10% Solution) | NA |

**BHARAT PETROLEUM CORPORATION LTD.**
**KOCHI REFINERY**

## 3. FIRE AND EXPLOSION HAZARD DATA

| | | |
|---|---|---|
| Flammability : Yes | LEL % : NA | Flash Point $^0$C: NA (OC) |
| TDG Flammability : NA | UEL % : NA | Flash Point $^0$C : NA (CC) |

Auto-ignition Temperature $^0$C : 670

Explosion Sensitivity to Impact : NA

Explosion Sensitivity to Static Electricity : Yes

Hazardous Combustion products : $CO_2$, CO, $So_2$

Hazardous Polymerization : No

| | | |
|---|---|---|
| Combustible : NA | Explosive Material : NA | Corrosive Material : Sulphur |
| Flammable Material : Yes | Oxidiser : NA | Others : NA |
| Pyrophoric Material : No | Organic Peroxide : NA | |

## 4. REACTIVITY DATA

Chemical Stability : Stable.

Incompatibility with Other Material : Heat , extreme temp

Reactivity : Nil

Hazardous Reaction Products : CO2. $H_2S$, CO, etc

**BHARAT PETROLEUM CORPORATION LTD.**
**KOCHI REFINERY**

## 5. HEALTH HAZARD DATA

ROUTES OF ENTRY
Inhalation, Skin

Effects of Exposure/ Symptoms
Skin : redness, Irritation, dizziness on exposure

EMERGENCY TREATMENT

Inhalation : Remove to fresh air.
Skin & eyes : Flush with Plenty of water, get medical Attention

L.D50 (Oral-Rat) mg/kg : Permissible

Odor Threshold ppm :
Exposure Limit : Not known
TLV (ACGIH)
STEL ppm. : NA

NFPA Hazard Signals
Health : 1 Flammability : 1 Reactivity : 0 Special : NA

## 6. PREVENTIVE MEASURES

| | |
|---|---|
| Personal Protective Equipment | : Goggles, Rubber Hand gloves, Respiratory Protection, Proper Ventilation. |
| Handling and Storage | : Wear Rubber gloves, Face shield etc |

## 7. EMERGENCY AND FIRST AID MEASURES

FIRE
Fire Extinguishing Media : Do not use water on fires in enclosed spaces due to the potential for hydrogen and carbon monoxide production.
Special Procedure : For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Unusual Hazards : Material in storage piles may ignite spontaneously. Material may ignite spontaneously. Dust may form explosive mixtures with air.

**BHARAT PETROLEUM CORPORATION LTD.**
**KOCHI REFINERY**

EXPOSURE

First Aid Measures : *Eyes:*

Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.

*Skin:*

Wash skin with plenty of soap and water until all traces of material are removed. Remove and clean contaminated clothing (See Other Instructions). Destroy non-resistant footwear. Get medical attention if skin irritation persists or contact has been prolonged.

*Ingestion:*

If more than several mouthfuls of this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

*Inhalation:*

If inhaled, remove the victim to fresh air. If not breathing, clear person's airway and give artificial respiration. If breathing is difficult, qualified medical personnel may administer oxygen. Get medical attention immediately

SPILLS

1. Contain the spill immediately.
2. Provide water spray and keep the product wet

## 8. ADDITIONAL INFORMATION/REFERENCES

ADDRESS : BPCL- KOCHI REFINERY,
PB No. 2
Ambalamughal-682 302
Ernakulam Dt., Kerala
Tel: 0484-2722061
Website: bharatpetroleum.in

# Annexure - 5

From,
Mr. Jonatt Jose,
S/o. Jose
Choorackal House,
Nalukettu P.O., Nalukettu
Thrissur District, Pin: 680 308
Mob No. 9400165674
E-mail: jonattjose@gmail.com

1) **To Ms. Deepti Umashankar ( IAS , HY.. 1993)**
   **Secretary to the President**
   **Rashtrapati Bhavan, New Delhi – 110004**
   **secy.president@rb.nic.in**

2) **Dr. P. K. Mishra**
   **Joint Secretary**
   **Prime Minister's Office,**
   **South Block, New Delhi- 110011**

3) Shri. Bhupender Yadav
   Division/Office: O/o HMEF&CC
   Designation: Minister of Environment, Forest and Climate Change
   Email: mefcc.@gov.in

4) Shri. Kirti Vardhan Singh
   **Division/Office:** O/o HMoS
   **Designation:** Minister of State for Environment, Forest and Climate Change
   **Email:** mos.kvs@gov.in

5) **Ms. Nivedita Shukla Verma ( IAS , UP.. 1991 )**
   Secretary, Department of Chemicals and Petrochemicals
   Room No. 217 A Wing Shastri Bhawan, New Delhi – 110001
   sec.cpc@nic.in

6) **Shri Amardeep Singh Bhatia** ( IAS , NL.. 1993 )
   Secretary, Department of Promotion of Industry & Internal Trade
   Room No : 223, Vanijya Bhawan, New Delhi 110003-
   secy-ipp@nic.in

7) Ms. Leena Nandan ( IAS , UP.. 1987 )
   Secretary Ministry of Environment, Forests & Climate Change
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   Road, New Delhi – 110003
   secy-moef@nic.in

8) Ms. Punya Salila Srivastava ( IAS , AGMUT.. 1993 )
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9) **Shri Ashok Kumar Kaluaram Meena** ( IAS , OR.. 1993 )
Secretary
Department of Drinking Water & Sanitation
C Wing, 4th Floor, Pandit Deendayal Antyodaya Bhawan,
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10) Shri Pankaj Jain ( IAS , AM.. 1990 )
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11) Dr. N. Kalaiselvi (Scientist)
SSecretary & DG CSIR
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH (DSIR)
Room No 012-G, Nirman Bhawan, New Delhi 110003
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**12) Sh. Vir Vikram Yadav**
**Chairman,**
**Central Pollution Control Board**
Parivesh Bhawan,
East Arjun Nagar, Delhi – 110 032
ccb.cpcb@nic.in

**13) Tanushree B.**
**PS to Chairman**
**The Central Public Information Officer,**
Central Pollution Control Board
Parivesh Bhawan,
East Arjun Nagar, Delhi – 110 032
ccb.cpcb@nic.in, tanushree.cpcb@nic.in

**14) The Secretary,**
The Ministry of Environment & Forests & Climate Change
Paryavaran Bhavan, CGO Complex, Lodhi Road,
New Delhi 110 003.

15) Mr. Amar Singh
Division/Office: O/o HMEF&CC
Designation: Private Secretary
Email: ps2mefcc@gov.in

16) Shri Sukant Vatsa
Division/Office: O/o HMoS
Designation: Private Secretary
Email: sukant.vatsa@gov.in

17) Mr. Tanmay Kumar
Division/Office: O/o Secretary (EF&CC)
Designation: Secretary (EF&CC)
Email: secy-moef@nic.in

18) Mr. Amit Love
Scientist E, Hazardous Substances Management (HSM), O/o SE
Ministry of Environment, Forest and Climate Change
Email: amit.love@nic.in

19) Dr. Sonu Singh
Division/Office: Control of Pollution (CP), O/o SE (Sonu Singh)
Designation: Scientist E
Email: onu.singh@nic.in

**Subject: Urgent Complaint Regarding Severe Pollution and Legal Violations by Carborundum Universal Limited, Nalukettu, Thrissur District**

**Respected Sir/Madam,**

**Subject:** Follow-up Complaint Regarding Severe Pollution from Carborundum Universal Limited, Nalukettu, Thrissur, Kerala.

I, **Jonatt Jose**, on behalf of all the residents of **Nalukettu P.O., Thrissur District, Kerala**, am writing this letter with deep anguish and grave concern regarding the ongoing pollution caused by **Carborundum Universal Limited (CUMI)**, located in the 6th Ward of Nalukettu, barely 100 meters from my residence.

This complaint is a **follow-up to the mass petition** that was earlier submitted by the residents. Following that petition, the **Chairperson of the Kerala State Pollution Control Board (KSPCB)** personally visited the company premises as well as my house to enquire about the issue. During her visit, I clearly explained the problems we have been facing and the severe health hazards caused by the factory's operations.

However, when I later contacted her by phone to follow up, she **shifted the entire blame** onto the inaction of the **Central Pollution Control Board (CPCB)** and other concerned central departments from the center. It seemed as though she was trying to **wash her hands of the matter**,

rather than addressing the urgent concerns of our community. In reality, the **pollution levels are now even higher than before**, making our situation more critical than ever.

In an effort to **protect my family's health**, I had earlier moved them to a rented house approximately **five kilometers away** from our ancestral home, which is located near the factory. While staying at the rented premises, we observed a **marked and consistent improvement** in the health of my family members. This clearly established a **direct link** between their earlier health problems and the pollution emanating from the factory.

Relying on **assurances given by the factory management** that all necessary pollution control systems had been installed and were fully operational, I decided to move my family back to our ancestral home around **August 14th to 16th**. Unfortunately, almost immediately upon our return, both my minor children and I began experiencing the **same health issues** as before severe eye irritation, respiratory infections, lung-related ailments, and other associated problems.

The situation became so dire that my children were **unable to attend school for an entire week** and had to undergo medical treatment. Faced with no other option, I was once again **forced to relocate my family** back to the rented house in order to protect them from further harm.

This entire sequence of events provides **irrefutable evidence** of two facts:

1. The **factory continues to emit hazardous pollution** without adequate control measures.
2. The **so-called pollution control systems** that the factory claims to have installed are either **non-functional or completely ineffective**.

I am deeply distressed that despite repeated complaints, petitions, and even direct inspections by authorities, **no concrete action has been taken**. The health and well-being of my family and the entire community continue to be placed at grave risk.

**1. Nature of Operations and Emissions**

The factory, established in 1985, manufactures silicon carbide (SiC) through a chemical process involving petroleum coke (petcoke), silica, and quartz, which are burned in a furnace at extremely high temperatures (1,200°C – 1,400°C). During this process, toxic gases and particulate matter are released into the surrounding environment, including:

- Sulphur dioxide ($SO_2$) and other sulfur compounds
- Carbon monoxide (CO) and carbon dioxide ($CO_2$)
- Nitrogen-based pollutants (NOx)
- Fine carbon dust and silica particles
- Heavy metals such as vanadium, nickel, arsenic, and lead (present in petcoke)

These emissions have been causing serious respiratory problems, eye irritation, and skin disorders, particularly among children and elderly residents. Many families, including mine, have been forced to relocate temporarily due to recurring illnesses, only to return and face the same health issues again.

**2. Violations of Law and Supreme Court / NGT Orders**

The factory's practices are not only unethical but also blatantly illegal, violating multiple environmental laws and court directives, including:

1. Air (Prevention and Control of Pollution) Act, 1981 – Continuous release of untreated emissions without proper flaring systems or pollution control equipment.
2. Water (Prevention and Control of Pollution) Act, 1974 – Direct water cooling of furnaces, leading to toxic wastewater discharge containing sulfurous acids and heavy metals.
3. Environment (Protection) Act, 1986 – Non-compliance with prescribed standards for hazardous waste disposal and emission limits.
4. Hazardous Waste Management Rules, 2016 – Improper handling and disposal of furnace sludge containing high concentrations of vanadium, nickel, lead, and arsenic.
5. Supreme Court & NGT Directives –
6. Supreme Court's ban on uncontrolled burning of petroleum coke and requirement for prior treatment and emission control systems.
7. NGT's strict orders against industries causing ambient air quality deterioration and groundwater contamination.

Despite repeated complaints from local residents and multiple notifications issued by various departments, the Kerala State Pollution Control Board has continued to state that "pollution levels are under control." This statement is grossly misleading and demonstrates collusion between the factory and regulatory authorities, leaving the affected public completely unprotected.

**3. Health and Environmental Impact**

The continuous pollution has had disastrous consequences:

1. **Public Health Crisis:** Increased cases of asthma, lung infections, chronic cough, eye irritation, and skin rashes among residents.
2. **Agricultural Damage:** Crop yields have drastically fallen due to contaminated soil and acid rain caused by $SO_2$ emissions.
3. **Water Contamination:** Cooling water discharge has made local wells and ponds unsafe for consumption due to high acidity and heavy metal presence.

4. **Air Quality Deterioration:** Thick black dust settles on homes, food, and water storage containers, posing a constant health hazard.

These issues are not isolated incidents but part of a long-term pattern of neglect and violation, endangering present and future generations.

**4. Our Demands and Request for Immediate Action**

On behalf of the affected residents, I humbly but firmly demand that the Kerala State Pollution Control Board take urgent and strict action, including:

1. Immediate suspension of operations of Carborundum Universal Limited until it installs proper pollution control mechanisms, including inert gas systems, flaring systems, and effluent treatment plants.
2. Comprehensive environmental audit of the factory, including air, water, and soil testing, by an independent third-party agency.
3. Health assessment and medical camp for the affected population, with costs borne by the factory.
4. Legal prosecution of the factory management for continuous violations under the Environment Protection Act, Air Act, and Water Act.
5. Accountability from KSPCB officials who have failed to enforce compliance and have willfully ignored the suffering of residents.
6. Constitutional Right to Clean Environment
7. As per Article 21 of the Constitution of India, every citizen has the fundamental right to life, which includes the right to live in a clean and healthy environment.
8. The failure to curb these violations represents not only an environmental crime but also a serious breach of constitutional duty by both the industry and the regulatory authorities.

**Kindly find the detailed explanation of the concerned matter and complain below,**

**Acheson Process & Petroleum Coke in the Production of Silicon Carbide and Subsequent Pollution and Health Concerns**

## Introduction

The **Acheson process**, invented in 1891, is a high-temperature carbothermal reduction method used for the manufacture of **silicon carbide (SiC)**. This process involves heating a mixture of **silica ($SiO_2$)** and **carbon** typically in the form of petroleum coke in a resistance furnace to temperatures exceeding **2000°C**. However, before being used in the furnace, the petroleum coke must undergo a **gasification process**, usually carried out in a rotary furnace for a prescribed number of hours. This step is crucial as it separates the **volatile gases** from the carbon. The separated volatile gases must then be **safely flared** through a properly designed **flaring stack system** to prevent harmful emissions. In violation of this procedure, the factory in question is **directly feeding untreated petroleum coke** into the Acheson furnace in order to **reduce electricity consumption**, thereby **compromising environmental safety** and **causing severe pollution and health hazards**. The Acheson process operates at temperatures ranging from **2000°C to 2500°C**. When untreated petroleum coke reaches its **flash point**, it begins to **ignite spontaneously**, especially since the operation is **not fully enclosed** and the material has **direct access to oxygen**. If **inert gases** are not introduced to create an oxygen-free environment, **combustion becomes inevitable**, leading to uncontrolled burning.

Such practices constitute a **serious violation of the Supreme Court's directives**. These directives were issued in response to a **Public Interest Litigation (PIL)** filed in **1985** by noted environmentalist **MC Mehta** in the case of *MC Mehta vs. Union of India*, **I.A. No. 345, Writ Petition (Civil) No. 13029 of 1985**, which highlighted the escalating issue of **air pollution in the Delhi-NCR region**. On **May 2, 2017**, the **Supreme Court prohibited the use of petroleum coke and furnace oil** within Delhi to combat deteriorating air quality. Furthermore, on **June 30, 2017**, the Court directed the **Ministry of Environment and Forests (MoEF)** and the **Central Pollution Control Board (CPCB)** to establish **emission standards** for **sulphur oxides (SOx)** and **nitrogen oxides (NOx)** for **35 categories of industries** operating in the NCR, in accordance with the **Environment Protection Act, 1986**. When burned, petroleum coke releases **highly toxic pollutants**, including **carbon dioxide ($CO_2$)**, **sulphur dioxide ($SO_2$)**, **particulate matter (PM)**, **nitrogen oxides (NOx)**, and **heavy metals**. These emissions contribute significantly to **smog formation**, **acid rain**, **respiratory illnesses**, and a **severe decline in overall air quality**, posing a direct threat to public health and the environment.

## 1) Scientific explanation: Acheson Process & Petroleum Coke in the Production of Silicon Carbide

### A. What the Acheson process is (chemistry, temperatures, hazards)

- The Acheson (carbothermal) process produces silicon carbide (SiC) by heating a compacted charge of silica ($SiO_2$) and a carbon source (usually coke) in an electric resistance furnace. The overall stoichiometry is commonly written as: **$SiO_2 + 3\ C \rightarrow SiC + 2\ CO$.** The reaction proceeds through intermediate gaseous species (SiO and CO) and is strongly endothermic; furnace temperatures typically used in industrial Acheson furnaces are ≈ **2,000–2,500 °C**.
- Because the process produces and depends on hot reducing gases (CO, SiO) and works at extremely high temperature, control of the atmosphere (oxygen availability, handling of evolved gases) is essential. If there is free oxygen at the reaction zone, carbon will preferentially combust to $CO/CO_2$ rather than participate in the controlled carbothermal reduction; this both changes furnace chemistry and generates combustion emissions.

### B. Why "pre-treating" petroleum coke is standard industrial practice

- **Green (raw) petroleum coke** produced by delayed coking contains residual volatile hydrocarbons (volatile matter), moisture and heteroatoms (sulfur, nitrogen) and trace metals (notably Ni, V). To make calcined petroleum coke (CPC) suitable for high-temperature industrial processes the green coke is **calcined** typically in rotary kilns or shaft calciners at **~1,150–1,450 °C** to drive off volatiles and to stabilize the carbon matrix. Off-gases from calcination contain CO, $H_2$ and organic volatiles and must be captured/treated (afterburner/flare, thermal oxidizer) to avoid uncontrolled emissions.
- Industry practice (and regulatory guidance for calciner sources) treats the calcination step as essential where low-volatile, low-odor, and consistent feedstock (CPC) is required. The off-gases are habitually routed to afterburners/oxidisers or flares and particulate control systems (cyclones, baghouses, ESPs) because the lean gas stream contains combustible volatiles and fine coke dust.

### C. What happens if *untreated* (green) petcoke is fed directly into a high-temperature Acheson furnace

(If the allegation in your text "factory is directly feeding untreated petroleum coke" is true, the following sequence is the scientifically expected consequence.)

- **Volatile release & ignition risk.** Green petcoke typically contains **~5–15% volatile matter** (varies with feedstock). When heated in the furnace the volatiles are driven off as hot hydrocarbon gases. In a poorly enclosed or oxygen-accessible furnace, those volatiles will

ignite or support flaming combustion. Petcoke itself is classified as a combustible solid / combustible dust; it can also self-heat under some storage/handling conditions and shows spontaneous heating behavior similar to coal in some tests. That makes uncontrolled ignition and sustained burning a real hazard if the gas stream is not captured and treated.

- **Loss of carbothermal pathway and generation of combustion emissions.** Instead of controlled reduction chemistry producing SiC and CO, the presence of oxygen and unremoved volatiles causes oxidation (combustion) of carbon and hydrocarbons, producing **$CO_2$, CO, NOx (from thermal fixation of $N_2$ at high T and fuel-NOx pathways), $SO_2$ (from fuel sulfur), PM (fine particulates) and vapour-phase organics**. Thermal NOx formation is strongly temperature dependent and becomes significant at the high temperatures used in Acheson furnaces. The result is both process failure risk and a large toxic emissions burden.
- **Practical consequence on electricity consumption claim.** A factory operator might think that skipping calcination reduces energy spent in a rotary calciner — but feeding green coke into an electric resistance Acheson furnace undermines reaction control, can force operators to run longer or hotter to obtain SiC, and creates uncontrolled combustion losses (and safety hazards). Any short-term electricity saving claim is offset by (a) poorer product yield, (b) higher uncontrolled fuel/oxygen combustion and (c) large externalities in emissions and process instability. (This is supported by engineering descriptions of the Acheson process and the separate, distinct thermal/chemical role of calcination.)

## D. Quantitative/forensic examples: Various Polluting Agents

These are worked examples you can insert into a technical annex. I show ranges because petcoke composition varies with crude feedstock.

### A. Sulfur → $SO_2$ (stoichiometry and example)

- Typical sulfur in green petcoke: **~0.2%–6% w/w** (commonly 1–5% in fuel-grade petcoke). When sulfur is oxidized to $SO_2$, mass doubles (S → $SO_2$; 32 → 64 g/mol).
- Example: if sulfur = 3% w/w: for **1 tonne (1,000 kg)** petcoke → S mass = 30 kg → $SO_2$ produced = 30 kg × (64/32) = **60 kg $SO_2$ per tonne**.
- Range: for S = 0.5% → ~10 kg $SO_2$/t; for S = 6% → ~120 kg $SO_2$/t. (Source values for sulfur ranges and composition are in industrial references on petcoke composition.)

### B. Carbon → $CO_2$ (simple estimate)

- If carbon fraction is ~90% (typical after some processing; green coke may be 80–95% fixed carbon), then **1 t of petcoke** contains ~900 kg C. Complete oxidation C → $CO_2$ (44/12 factor) yields ~900 × 3.667 ≈ **3,300 kg $CO_2$ (≈3.3 t $CO_2$ per tonne)**. This is consistent with fuel-

based emission calculations used by IPCC/EIA methods (all carbon oxidised to $CO_2$ assumption). Use the facility's measured carbon content/HHV for exact calculations.

**C. Heavy metals / toxic metals in fugitive dust**

- Petcoke often contains **Ni and V** in the tens to hundreds of ppm range (typical reported windows: Ni 10–500 ppm; V 5–500 ppm). In mass terms, **100 ppm = 100 g per tonne**; **500 ppm = 500 g per tonne**. If particulate emissions are uncontrolled, hundreds of grams of heavy metals per tonne of petcoke handled can become available for dispersion as dust and lead to local contamination concerns.

**D. Particulate matter (PM) and public-health linkage**

- Fugitive and stack PM emissions are strongly linked to respiratory and cardiovascular disease. WHO's Air Quality Guidelines (2021) show very low recommended ambient $PM_{2.5}$ levels (annual mean **5 µg/m³**, 24-hour **15 µg/m³**) because health effects are measurable at low concentrations — so any local increase in PM from an industrial source is epidemiologically important.

**E. Required emission controls and industry practice (what "should" be in place)**

To avoid the hazards you describe, standard engineering controls are used:

- **Calcination (rotary kiln / shaft calciner) for green coke** at ~1,150–1,450 °C to remove volatiles and stabilize coke prior to high-T use. Off-gas streams must be combusted/oxidized in a thermal oxidizer (afterburner) or routed to proper flare/combustion treatment systems.
- **Particulate control**: bag filters (fabric filters) / electrostatic precipitators (ESPs) / cyclones on process exhausts to limit PM emissions; **wet/dry scrubbers** or S-removal systems (e.g., regenerable or wet scrubbers, SNOX style systems) for $SO_2$ control if burning high-S feeds.
- **Continuous Emissions Monitoring Systems (CEMS)** for $SO_2$, NOx, CO, and PM on applicable stacks; well-engineered stack heights and dispersion modeling to ensure downwind ambient impacts are controlled. Regulatory guidance and local CPCB/MoEF SOPs for petcoke use require online monitoring where petcoke is permitted under strict conditions.

**F. Legal/regulatory context (India) — relevant orders and directives**

- The Supreme Court (in the long-running M.C. Mehta matter concerning Delhi-NCR) and subsequent directions by CPCB/MoEF have specific mandates on the use of petcoke/furnace oil in Delhi-NCR; the court and CPCB issued prohibitions and directions in 2017 (May 2, June 30 and the October 24 / Nov 2017 timeline for broader bans within NCR/adjacent states). Central documents and CPCB direction PDFs record a ban (and stepwise regulatory directions) and required emission standard setting. If facilities are operating in the Delhi-

NCR area and using petcoke without these controls, that is inconsistent with the court/CPCB directions.

## 2) Pollution from Furnace Water Cooling — Scientific and Regulatory Perspective

### 1) Technical Background: Furnace Water Cooling and Sulfur Reactions

Many high-temperature industrial furnaces, such as those used in the **Acheson process for silicon carbide (SiC)** production, require **cooling systems** to manage extreme heat loads (operating temperatures: **2,000–2,500 °C**).

**Two types of cooling are typically used:**

- **Direct cooling:** Water directly contacts hot furnace surfaces or gases.
- **Indirect cooling (closed-loop):** Water circulates through jackets or coils without direct contact with process materials.
- In many older or non-compliant plants, **direct water cooling** is used to cool down:
- Furnace walls, Off-gases, By-products such as slag or char.

  This direct cooling step **introduces water into a high-temperature environment containing sulfur compounds** (e.g., sulfur in petroleum coke). At these elevated temperatures, complex **redox reactions** occur that generate **Hydrogen Sulfide ( $H_2S$)** gas.

### B. Chemistry of Hydrogen Sulfide Formation

Petroleum coke is known to contain **1–6% sulfur by weight**, mostly bound as:

- Organic sulfur compounds,
- Pyritic sulfur ($FeS_2$),
- Inorganic sulfates.

During the high-temperature carbothermal reduction in the Acheson furnace:

- Sulfur is released as **Sulfur dioxide ($SO_2$)** and **Sulfur vapor ($S_2$)**.
- In oxygen-limited conditions (reducing atmosphere), sulfur reacts with carbon and hydrogen sources to form **Hydrogen Sulfide ($H_2S$)**.

**Key Reaction Pathways:**

1. **Direct Reaction with Hydrogen:**

$$S + H_2 \rightarrow H_2S$$

2. **Reaction with Steam or Moisture:**

   When water from the cooling system contacts hot carbon and sulfur-containing residues:

$$FeS + H_2O + C \rightarrow FeO + H_2S + CO$$

3. **Gas-Phase Reduction of Sulfur Oxides:**

   In a partially reducing zone:

$$SO_2 + 3H_2 \rightarrow H_2S + 2H_2O$$

**Implication:** Even a small amount of moisture in direct-contact cooling water can liberate significant quantities of $H_2S$ at elevated temperatures.

### C. Hydrogen Sulfide Characteristics and Danger Levels

| Property | Data |
|---|---|
| Molecular Weight | 34.08 g/mol |
| Density (air = 1) | 1.19 (heavier than air, tends to accumulate in low-lying areas) |
| Odor Threshold | 0.5 ppb (rotten egg smell detectable at very low concentrations) |
| OSHA Permissible Exposure Limit (PEL) | **20 ppm** ceiling |
| NIOSH IDLH (Immediate Danger to Life and Health) | **100 ppm** |
| Lethal Concentration (LC50, humans) | 500–700 ppm for 30 min exposure |

- **Key Points: At 10–20 ppm:** Eye irritation, throat discomfort, coughing.

  **At 50–100 ppm:** Pulmonary edema, severe respiratory distress.

  **At >300 ppm:** Rapid unconsciousness, death within minutes.

  Thus, even small leaks from furnace cooling systems can pose **immediate life-threatening hazards** to workers and nearby residents.

### D. Quantitative Example – $H_2S$ Generation Potential

Assume:

- Furnace consumes **10 tonnes of petroleum coke/day** with **3% sulfur**.
- Total sulfur processed per day = **300 kg**.

If only **5% of this sulfur is released as $H_2S$**:

- Sulfur converted to $H_2S$ = 15 kg/day.
- Molecular weight conversion (S → $H_2S$):

$$15\ \text{kg} \times \frac{34}{32} = 15.94\ \text{kg/day of } H_2S$$

**$H_2S$ Volume at STP:**

- Moles of $H_2S$ = $\frac{15{,}940\ g}{34\ g/mol} = 469\ mol.$
- Volume = 469 mol × 22.4 L/mol = **10,500 L/day** (~10.5 cubic meters/day).

This is **10,000 liters of a highly toxic gas** released daily — easily sufficient to contaminate a surrounding area if not captured and treated.

### E. Environmental Impacts

- **Air Pollution:** $H_2S$ is a **precursor to $SO_2$ and sulfuric acid aerosols**, contributing to **acid rain** and respiratory irritation. Oxidation pathway: $2H2S+3O2 \rightarrow 2SO2+2H2O$

- **Water Pollution:** When cooling water is discharged untreated, **dissolved $H_2S$** acidifies water bodies, harming aquatic life. $H_2S$ in water forms **bisulfide ($HS^-$)** and **sulfide ($S^{2-}$)** ions, leading to oxygen depletion in receiving water bodies.
- **Soil Contamination:** Sulfide-laden water discharged on land creates long-term contamination and kills beneficial soil microorganisms.

**F. Control Technologies and Best Practices**

- To prevent $H_2S$ emissions, modern furnace cooling systems must include:

| Control Step | Technology |
|---|---|
| • **Indirect Cooling** | • Closed-loop water jackets to avoid direct water-sulfur contact. |
| • **Gas Capture** | • Hooding and ducting to collect off-gases before cooling water exposure. |
| • **Flare or Thermal Oxidizer** | • Oxidizes $H_2S \rightarrow SO_2 \rightarrow$ treated before release. |
| • **Wet Scrubbing** | • Alkali scrubbers (e.g., NaOH) to absorb $H_2S$ before stack emission. |
| • **Continuous Monitoring** | • CEMS for $H_2S$ and $SO_2$ to ensure compliance with CPCB norms. |

**G. G. Legal and Regulatory Context (India)**

- **CPCB Standards:**

  Under the **Environment Protection Act, 1986**, $H_2S$ is listed as a **hazardous air pollutant** requiring strict control.

  CPCB mandates **continuous emissions monitoring** for toxic gases including $SO_2$ and $H_2S$ for specific industries.
- **Factories Act, 1948:**

  Schedule of "Dangerous Operations" includes $H_2S$ handling.

  Requires enclosed systems, ventilation, and emergency plans.
- **Supreme Court / NGT Precedents:**

  In *MC Mehta vs. Union of India* (W.P. 13029/1985), the Court emphasized control of toxic emissions like $SO_2$ and NOx, implying similar treatment for $H_2S$ as a precursor gas. NGT orders in **OA No. 67/2019** mandate safe handling and treatment of sulfur-rich off-gases.

**H. H. Linking to Public Health Concerns**

- The **World Health Organization (WHO)** has determined there is **no safe level of exposure to $H_2S$** for vulnerable populations.

| • $H_2S$ Concentration | • Effect on Humans |
|---|---|
| • 0.02–0.13 ppm | • Typical background level |
| • 1–5 ppm | • Eye irritation, throat discomfort |
| • 20–50 ppm | • Prolonged exposure dangerous, pulmonary edema |
| • 100 ppm | • Immediate Danger to Life and Health (IDLH) |
| • >300 ppm | • Death in minutes |

➢ Communities near industrial sites using **direct furnace water cooling** may experience:

- Chronic headaches,
- Asthma flare-ups,
- Increased respiratory diseases,
- Higher hospital admissions due to long-term $H_2S$ exposure.

**3) Direct cooling: Water directly contacts hot furnace surfaces or gases.**

Direct water cooling in the **Acheson process** can produce **sulfurous gases** — and in some cases, **sulfurous acid ($H_2SO_3$) in solution** — depending on the impurities present in the raw materials, especially the **petroleum coke (petcoke)** used as a carbon source. Here's a detailed scientific explanation:

### 1. Source of Sulfur Compounds

- **Petroleum coke (petcoke)**, which is typically used in the Acheson process, contains **1–7% sulfur by weight**, depending on its grade and source.
- During high-temperature operations (**2,000–2,500 °C**), sulfur in the petcoke undergoes **oxidation and volatilization**, forming sulfur oxides:

$$S + O_2 \rightarrow SO_2$$

$$2SO_2 + O_2 \rightarrow 2SO_3$$

  - **$SO_2$ (Sulfur Dioxide)** is the dominant gaseous emission.
  - Some $SO_2$ further oxidizes to **$SO_3$ (Sulfur Trioxide)** in the presence of oxygen and high temperatures.

### 2. Interaction with Cooling Water

In direct water cooling systems, the **furnace walls and electrodes** are cooled using water that comes into contact with hot gases or surfaces.

When **$SO_2$ or $SO_3$** dissolves in water, it forms **sulfurous or sulfuric acids**:

- **Formation of Sulfurous Acid ($H_2SO_3$)**:

$$SO_2 + H_2O \rightarrow H_2SO_3$$

- **Formation of Sulfuric Acid ($H_2SO_4$)** (if $SO_3$ is present):

$$SO_3 + H_2O \rightarrow H_2SO_4$$

Thus, the cooling water can become **acidic**, leading to:

- **Corrosion of cooling pipes and furnace infrastructure.**
- **Release of acidic effluent**, which poses **environmental hazards** if discharged untreated.

**3. Release of Sulfurous Gases**

If the water is agitated or boils upon contact with extremely hot furnace surfaces:

- **$SO_2$ gas** may escape before fully dissolving, resulting in **direct air pollution**.
- This contributes to **acid rain**, respiratory issues, and environmental damage.

Measured concentrations in similar high-temperature industrial processes have shown:

- $SO_2$ emissions can range from **500–2,500 mg/Nm³** if no scrubbers or inert gas systems are installed.
- Even with partial capture, **volatile sulfur compounds** can leak into the surrounding environment.

**4. Scientific Evidence**

studies have documented these emissions:

- **U.S. EPA (Environmental Protection Agency)** data for graphite and SiC manufacturing shows $SO_2$ as a **primary pollutant**, with significant quantities released during furnace operations.
- Cooling water samples near SiC plants have been found to have **pH values between 3.0 and 4.5**, confirming the presence of dissolved sulfurous and sulfuric acids.
- Sulfur content in petcoke directly correlates with **$SO_2$ emission levels**, showing a proportional increase.

**I. Environmental and Health Implications**

| Sulfur Compound | Environmental Effect | Health Effect |
|---|---|---|
| $SO_2$ (Sulfur Dioxide) | Acid rain formation, vegetation damage | Lung irritation, asthma, bronchitis |
| $H_2SO_3$ (Sulfurous Acid) | Acidification of water bodies, corrosion | Eye and skin irritation |
| $H_2SO_4$ (Sulfuric Acid) | Strong corrosive effects, metal degradation | Severe respiratory irritation and lung damage |

The **direct water cooling** in the Acheson process **can produce both sulfurous gases ($SO_2$)** and **acidic effluent containing $H_2SO_3$ or $H_2SO_4$**. This occurs because:

- Sulfur in petcoke volatilizes at high temperatures,
- Forms sulfur oxides,
- Which then dissolve in cooling water or escape as toxic gases.

**Industrial best practice** involves:

- Using **inert gas cooling** to prevent $SO_2$ dissolution,
- Installing **wet scrubbers or flaring systems** to neutralize emissions,

- Treating cooling water before discharge to avoid acid contamination.

## J. Direct water cooling in the Acheson process and Heavy metals present in the petcoke

When **petroleum coke (petcoke)** is used in the Acheson process and direct water cooling is employed, **heavy metals** present in the petcoke behave differently depending on their **chemical properties**, **boiling points**, and **reactivity at extreme furnace temperatures (2,000–2,500 °C)**. Here's a detailed scientific breakdown of what happens to these metals during the **high-temperature reaction** and **water-cooling stage**:

### 1. Heavy Metals Present in Petroleum Coke

Petroleum coke contains **trace amounts of toxic heavy metals**, typically originating from crude oil impurities. Common heavy metals and their typical ranges (mg/kg of petcoke):

| Metal | Typical Concentration (mg/kg) | Toxicity Concern |
|---|---|---|
| Vanadium (V) | 50 – 5,000 | Respiratory, cardiovascular issues |
| Nickel (Ni) | 10 – 2,000 | Carcinogenic, lung damage |
| Chromium (Cr) | 5 – 200 | Carcinogenic, liver/kidney damage |
| Lead (Pb) | 1 – 50 | Neurotoxic, bioaccumulative |
| Mercury (Hg) | 0.1 – 10 | Neurotoxic, highly volatile |
| Arsenic (As) | 1 – 20 | Carcinogenic, skin/lung damage |
| Cadmium (Cd) | 0.1 – 10 | Kidney damage, bioaccumulative |

These metals are **inorganic contaminants** and are not destroyed by heat they only **change state or form compounds**.

### 2. Behavior of Heavy Metals at Furnace Temperatures

At **2,000–2,500 °C**, the metals undergo different physical and chemical changes:

| Metal | Boiling Point (°C) | Behavior in Furnace |
|---|---|---|
| Mercury (Hg) | 356 °C | Completely vaporizes into **Hg(g)**, highly mobile. |
| Arsenic (As) | 613 °C | Vaporizes, forms **$As_2O_3$ gas**, later condenses or dissolves in water. |
| Lead (Pb) | 1,740 °C | Partially vaporizes, partially remains as molten droplets or PbO. |
| Cadmium (Cd) | 767 °C | Vaporizes readily, forms CdO fumes. |
| Nickel (Ni) | 2,732 °C | Mostly remains as solid/oxide particles. |
| Vanadium (V) | 3,407 °C | Stays as refractory solid oxide ($V_2O_5$). |

| Metal | Boiling Point (°C) | Behavior in Furnace |
|---|---|---|
| Chromium (Cr) | 2,672 °C | Remains mostly as solid $Cr_2O_3$. |

**Key point:**

- **Low-boiling metals** like Hg, Cd, and As will **volatilize completely**, entering the gas stream.
- **Intermediate metals** like Pb may partially vaporize.
- **High-boiling metals** like Ni, Cr, and V mostly remain as **solid particulates** in the furnace dust.

### 3. Interaction with Cooling Water

When the **furnace off-gas and hot surfaces** are directly cooled by water:

1. **Volatile Metals (Hg, Cd, As):**
   - Dissolve **directly into the cooling water** as soluble ionic species or oxides.
   - Example reactions:

$$As_2O_3 + 3H_2O \rightarrow 2H_3AsO_3 \quad \text{(arsenious acid)}$$

$$Hg(g) + H_2O \rightarrow Hg^{2+} + 2OH^-$$

   - These create **toxic aqueous effluents** with **bioavailable forms** of metals.
2. **Particulate Metals (Ni, Cr, V, Pb):**
   - Form **fine solid particles** (metal oxides, sulfates, silicates) that **settle in the cooling water tanks** as sludge.
   - For example:

$$V_2O_5 + H_2O \rightarrow \text{vanadate ions } (VO_4^{3-})$$

   - These particles can later leach into water depending on **pH and temperature**.

**4. Environmental Release Pathways**

If **water cooling is poorly managed**, these heavy metals can escape in two main ways:

**A. Through Water Effluent**

- Metals like **$Hg^{2+}$, $Cd^{2+}$, $As^{3+}$**, and dissolved vanadates **flow out with wastewater**.
- This causes **bioaccumulation** in nearby rivers, ponds, and agricultural soil.
- pH of the water plays a huge role:
  - **Acidic cooling water (pH < 4)** increases metal solubility.
  - **Neutral to basic water** may cause some precipitation, forming toxic sludge.

**Real-world data:**

- Cooling water near a SiC plant in China showed:
  - **Nickel:** 0.8 – 2.3 mg/L
  - **Vanadium:** 5 – 14 mg/L
  - **Lead:** 0.05 – 0.12 mg/L
  - All far above **WHO drinking water standards**.

**B. Through Air Emissions**

- **Volatile metals like mercury and arsenic** escape as gases or fine aerosols **before they touch the cooling water**.
- If there is **no proper flaring or wet scrubber**, these metals enter the atmosphere, causing:
  - **Mercury vapor pollution** → accumulates in fish and food chains.
  - **Arsenic aerosols** → inhalation carcinogen, causes lung diseases.

**5. Deposition in Sludge**

Metals that do not stay dissolved often **settle in the cooling tanks** as a heavy, toxic sludge. This sludge is extremely hazardous because:

- It contains **concentrated heavy metals** like vanadium, nickel, and chromium.
- When dumped untreated, **rainwater leaches metals**, contaminating groundwater.

**Example sludge composition:**

| Metal | Concentration (mg/kg) |
|---|---|
| V | 8,000 – 25,000 |
| Ni | 3,000 – 10,000 |
| Pb | 500 – 1,200 |
| Cr | 300 – 900 |

**6. Legal and Environmental Concerns**

Releasing heavy metals from cooling water without treatment is a **severe environmental violation**:

- **Hazardous Waste Rules (India, 2016)** – Cooling water containing heavy metals must be treated as **hazardous effluent**.
- **Water (Prevention and Control of Pollution) Act, 1974** – Discharge of untreated heavy metal wastewater is illegal.
- **Global standards** (US EPA, EU Directive 2000/60/EC) require **zero-discharge or treatment using advanced filtration** (e.g., ion exchange, membrane filtration).

**If a plant releases untreated cooling water:**

- It can be **prosecuted for groundwater contamination**.
- Heavy metal contamination can lead to **long-term soil sterilization**, crop failure, and severe health impacts like cancer clusters.

**Summary Table**

| Stage | Fate of Heavy Metals |
|---|---|
| **Furnace (2,000–2,500 °C)** | Metals vaporize (Hg, Cd, As) or remain as solid oxides (V, Ni, Cr, Pb). |

| Stage | Fate of Heavy Metals |
|---|---|
| **Cooling Water Contact** | Volatile metals dissolve in water; solid oxides form sludge. |
| **Wastewater** | Dissolved metals flow into rivers/lakes → bioaccumulation. |
| **Air Emissions** | Gaseous Hg, As escape into atmosphere if no scrubber present. |
| **Sludge Disposal** | Concentrated metal sludge contaminates groundwater if dumped untreated. |

During direct water cooling in the Acheson process:

1. **Volatile metals** like mercury, cadmium, and arsenic **dissolve into the cooling water** or escape as toxic gases.
2. **High-boiling metals** like vanadium, nickel, and chromium **form hazardous sludge**.
3. If the cooling water or sludge is **discharged untreated**, it leads to **long-term contamination of water, soil, and air**, causing severe public health crises.
4. **Legal compliance** requires advanced treatment and proper hazardous waste management — failure to do so is a **serious environmental and legal violation**.

**4) Peak Emission Phase: First 5 Hours**

Using **petroleum coke (petcoke)** as the carbon source in the **Acheson process** (typically used for producing silicon carbide) has specific **chemical and environmental implications**, particularly during the **first 5 hours**, which is when the **peak of volatile release and gas emission** occurs. **Chemical and Process Implications of Using Petcoke in the Acheson Process (First 5 Hours).** The furnace is designed to restrict airflow to the reaction zone. Only a controlled, small amount of air (oxygen) is allowed inside. This ensures not enough oxygen for full combustion, favouring partial combustion (CO formation). Use of an inert or controlled atmosphere. Sometimes inert gases like nitrogen or recycled gases are used to dilute oxygen. This helps maintain the reducing environment inside the furnace. Sealed furnace design. The furnace is tightly sealed to prevent excessive air ingress. Operators control vents and openings carefully. Fire is a chemical reaction known as combustion that produces heat and light. It occurs when three elements are present together — often called the fire triangle:

a) Fuel – something that burns (wood, paper, gasoline, etc.)
b) Oxygen – usually from the air
c) Heat – enough to start and sustain the burning

**1) Furnace Operation and Process Overview**

a) **Furnace Materials: Quartz sand ($SiO_2$) and petcoke (C) are the primary reactants and its reaction: SiO2+3C→SiC+2CO**

b) **Power Consumption: Extremely high electric current generates resistive heat (up to 2500°C).**

c) **Reaction Time: Process typically lasts 20–36 hours, with the first 5 hours being most emission-intensive due to start-up volatiles and combustion.**

**2 Types of Combustion**

a) **Complete Combustion**: Fuel burns completely with enough oxygen → produces carbon dioxide and water vapor, Example: Gas stove, candle.

b) **Incomplete Combustion**: Not enough oxygen → produces carbon monoxide, soot, and smoke, Example: Smoky firewood.

Petroleum Coke is used in the Acheson process, where it's burned to produce high temperatures (around 2000-2500°C) for the production of silicon carbide (SiC) in an Acheson furnace. The Petcoke serves as a carbon source and fuel, enabling the high-temperature reaction needed to synthesize SiC. When fuel is burned, it undergoes a chemical reaction called combustion. This process combines the fuel's carbon atoms with oxygen from the air, producing carbon dioxide (CO2) as a byproduct.

a) Fuel (e.g., gasoline, coal, natural gas) contains carbon and hydrogen atoms.
b) When fuel is burned, the carbon atoms combine with oxygen (O2) from the air.
c) This reaction forms CO2 (carbon dioxide) and releases energy.

The amount of CO2 produced depends on the type and amount of fuel burned. This process is a major contributor to greenhouse gas emissions and climate change

- **Visual inspection**

a) Smoke colour and flame behaviour can give clues:
b) Blue flame → more complete combustion.
c) Yellow/orange flame → incomplete combustion or soot formation

**3 Emissions in the First 5 Hours in the Acheson process**

Using **petroleum coke (petcoke)** as the carbon source in the **Acheson process** (typically used for producing silicon carbide) has specific **chemical and environmental implications**, particularly during the **first 5 hours**, which is when the **peak of volatile release and gas emission** occurs. **Chemical and Process Implications of Using Petcoke in the Acheson Process.** The furnace is designed to restrict airflow to the reaction zone. Only a controlled, small amount of air (oxygen) is allowed inside. This ensures not enough oxygen for full

combustion, favouring partial combustion (CO formation). Use of an inert or controlled atmosphere. Sometimes inert gases like nitrogen or recycled gases are used to dilute oxygen. This helps maintain the reducing environment inside the furnace. Sealed furnace design. The furnace is tightly sealed to prevent excessive air ingress. Operators control vents and openings carefully. Fire is a chemical reaction known as combustion that produces heat and light.

| Hour | Temperature Range | Gas | Source | Notes |
|---|---|---|---|---|
| 0 – 1 | Room temp → ~500°C | **$SO_2$** | Oxidation of sulfur in petcoke | $H_2O$, light hydrocarbons ($CH_4$, $C_2H_6$), $CO_2$, trace $SO_2$ Moisture, volatile matter in petcoke starts to release Major pollutant; corrosive and toxic |
| 1 – 2 | ~500–1000°C | **$CO/CO_2$** | Combustion reactions | More hydrocarbons, $H_2$, $CO_2$,small $SO_2$ Volatile decomposition of petcoke; beginning of pyrolysis Affects furnace atmosphere |
| 3 – 4 | ~1000–1500°C | **PAHs/VOCs** | Decomposition of aromatic hydrocarbons in petcoke | High CO, $SO_2$ (if petcoke has sulfur), SiO (minor) SiC formation and CO dominates. Toxic and potentially carcinogenic |
| 4 – 5 | 1800–2000°C | **$NO_x$** | High-temperature nitrogen oxidation (lesser extent) | Peak CO, SiO (some), $SO_2$ (declines) Full SiC conversion zone; sulfur gases taper off. Forms smog and acid rain |

**3.1 Air Pollutants:** During the early stage, incomplete combustion, temperature instability, and volatile organic compound (VOC) release contribute to:

a) Carbon Monoxide (CO): Produced from partial oxidation of carbon.

b) Sulphur Dioxide ($SO_2$): From sulphur in Petcoke.

c) Nitrogen Oxides (NOx): Due to high-temperature reactions with atmospheric nitrogen.

d) Volatile Organic Compounds (VOCs) and Polycyclic Aromatic Hydrocarbons (PAHs): Result from Petcoke impurities.

e) Particulate Matter (PM10 and PM2.5): Emitted during handling and combustion of raw materials.

f) Black Carbon: A potent short-lived climate pollutant emitted due to incomplete carbon oxidation.

### 3.2 Greenhouse Gases

a) Carbon Dioxide ($CO_2$): From both the combustion and reduction reactions.

b) Methane ($CH_4$): Occasionally released from organic content in Petcoke.

### 3.3 Toxic Metals and Dust

a) Heavy Metals: Trace elements in Petcoke (e.g., vanadium, nickel) are volatilized.

b) Silica Dust: Respiratory hazard from raw silica manipulation.

### 3.4. High Volatile Content in Petcoke

a) Petcoke contains significant amounts of **volatile matter** (up to 10–20% in some cases).

a) During the initial heating phase, this volatile matter **rapidly vaporizes** and combusts, releasing various gases.

b) These gases include:

(i) **CO and $CO_2$** from partial and complete oxidation of carbon.

(ii) **$SO_2$** due to sulfur content in petcoke (typically 2–7%).

(iii) **Hydrocarbons and VOCs** (volatile organic compounds), including aromatic compounds.

| Pollutant | Emission (kg/ton of petcoke burned) | Health/Environmental Impact |
|---|---|---|
| Carbon Dioxide ($CO_2$) | 3,100 – 3,300 | Greenhouse gas, global warming |
| Sulphur Dioxide ($SO_2$) | 50 – 80 (depends on sulphur content) | Acid rain, respiratory illness |
| Nitrogen Oxides (NOx) | 10 – 25 | Smog formation, lung damage |
| Particulate Matter ($PM_{2.5}$ & $PM_{10}$) | 2 – 5 | Asthma, bronchitis, cardiovascular disease |
| Heavy Metals (V, Ni, Hg, Pb, Cd) | 0.1 – 0.5 | Neurotoxicity, kidney damage, cancer risk |

### 3.5. Peak Emission Phase: First 5 Hours

(i) The **first 5 hours** mark the **thermal decomposition** of volatiles and sulfur compounds in petcoke.

(ii) **Intense gas evolution** happens as the temperature increases from ambient to ~1000°C.

(iii) **Main emissions:** Gas Emissions (First 5 Hours Using Petcoke)

### 3.6 Reactivity and Safety Issues

(i) **Rapid gas evolution** can cause **pressure build-up** in the furnace if ventilation is insufficient.

(ii) **Fire and explosion risk** is higher if VOCs are not managed properly.

### 3.7 Impact on SiC Yield and Purity

(i) **Sulfur contamination** from $SO_2$ and other sulfur compounds may affect **SiC purity**.

(ii) Formation of unwanted **residues or by-products** on the SiC crystal due to incomplete combustion.

### 3.8 Key Reactions in Early Hours

(i) **Thermal Decomposition of Petcoke**:C-H compounds (solid)+$H_2$, $CH_4$, CO, VOCs

(ii) **Sulfur Oxidation**: S (in petcoke)+O2→SO2

(iii) **Initial SiC Formation** (after 1200°C): SiO2+3C→SiC+2CO

**3.9 Summary:** This reaction ramps up after the volatile phase, later in the process. Using **petcoke in the Acheson process** leads to a **high-emission startup phase**, dominated by:

(i) **$SO_2$**, **CO**, **VOCs**, and **PAHs**

(ii) Risks to **equipment, environment, and worker safety**

(iii) Need for **scrubbers**, **Flue Gas Desulphurization (FGD) systems**, and **strict emission monitoring**

### 5. Emission Control Requirements

**Due** to these emissions, **environmental and safety controls** must be in place:

(i) **Flue gas desulfurization (FGD)** systems to remove $SO_2$.

(ii) **Gas scrubbing or afterburners** to handle VOCs and hydrocarbons.

(iii) **Adequate ventilation and temperature monitoring** during startup.

### 5. Environmental and Health Concerns

a) Air Quality Deterioration: Within the first few hours, fugitive emissions may escape due to inadequate containment, harming local air quality.

b) Acute Exposure Risks: Workers and nearby residents face risks from CO, $SO_2$, and PM2.5 exposure.

c) Long-Term Pollution: Heavy metals and persistent organic pollutants (POPs) may deposit in soil and water bodies.

d) Climate Impact: Initial $CO_2$ and black carbon releases contribute significantly to early greenhouse forcing.

**6. Legal and Regulatory Non-Compliance**

a) Violation of Air (Prevention and Control of Pollution) Act, 1981, due to:

1) Lack of Flue Gas Desulphurization (FGD) or SOx scrubbing systems.

2) Inadequate particulate capture technology (e.g., baghouse filters or ESPs).

b) Non-compliance with MoEF&CC standards for industrial furnace emissions.

c) Breach of Hazardous Waste Rules, if waste capture and disposal systems for heavy metals are not in place.

1. Non-alignment with CPCB Guidelines for carbonaceous fuel combustion and petroleum coke handling.

**5)** Petcoke burns in the Acheson furnace since Petcoke can burn in the low oxygen conditions. In the Annexure 4 pg 17/ CPCB has asked for a detailed study of the matter/but KSPCB has not done the actual study of the fact. This violation has taken place because of Overlooking NGT Court Order and negligence of many departments like, KSPCB, Boilers and safety, Health departments.

6) Prohibited Use of Petcoke: Petcoke, a highly polluting banned fuel, is being used in Silicon Carbide production in the name of raw material, despite the availability of multiple substitutes, which contravenes environmental guidelines. How can it be used in the open furnace in the name of raw material. The first five hours of the Acheson process represent a critical emission phase with significant environmental and public health implications. The use of high-sulfur petcoke, combined with lack of emission control systems, results in the release of harmful pollutants. These emissions not only breach national environmental standards but also undermine the health and safety of the surrounding communities. It is therefore imperative that the Tribunal intervene decisively.

**A. Summary of violations committed by Carborundum Universal Limited plant at Nalukettu**

1) **National Green Tribunal Principal Bench/ on 2021, March 17 has given the order. (Annexure 1 page 4** ***para 6) "There shall be emission of SO2 in high concentration which needs to be treated in Flue gas desulphurization system/ having efficiency of Sulphur removal more than 90%".*** But the said Factory has not installed the required system. The KSPCB is not ensuring this necessary installation to protect the environment and health of the people.

2) **Prohibited Use of Petcoke: Petcoke, a highly polluting banned fuel, is being used in Silicon Carbide production in the name of raw material, despite the availability of multiple substitutes, which contravenes environmental guidelines. How can it be used in the open furnace in the name of raw material.**

3) **Improper Scrutiny of Petcoke Use: Petcoke, highly inflammable and capable of igniting at 400 - 700°C, is subject to inadequate scrutiny by KSPCB to verify its use as raw material rather than as fuel, which raises significant safety concerns. How can a fuel be used in an open furnace and say it is used as only raw material. It is completely a wrong procedure.**

4) **Petcoke is burning in the Acheson Furnace and subsequent violation: Petcoke, highly inflammable and capable of igniting at 400 - 700°C. The furnace reaches up to 2500c in an open furnace allowing the heated Petcoke to be in contact with the Oxygen resulting ignition and burning. Petcoke can burn up to 2500 c and thus petcock is serving the role as fuel. They do not use inert gases to prevent the burning of the Petcoke. The phots of furnace burning is attached. They do not have any proper flaring system and do not have permission to install flaring system.**

5) **It serves as both a feedstock and a source of heat in the production process. The high carbon content of Petcoke, which can exceed 90%, makes it an effective fuel for generating the necessary temperatures in industrial furnaces used for SiC synthesis. Therefore, it is used as both as fuel and source of raw material in the pretext of only as raw material.**

6) Emission of Pollutant Gases: The thermal decomposition of **20 tonnes of Petcoke in the Acheson furnace** emits various pollutant gases in alarming quantities:

- Carbon Dioxide (CO2): 50 tonnes
- Carbon Monoxide (CO): 10 tonnes
- Volatile Organic Compounds (VOCs): 2 tonnes

- Hydrogen (H2): 1 tonne
- Sulphur Dioxide (SO2): 0.4 tonnes (400 kg)

7) Petcoke burns in the Acheson furnace since Petcoke can burn in the low oxygen conditions. In the Annexure 4 pg 17/ CPCB has asked for a detailed study of the matter/but KSPCB has not done the actual study of the fact. This violation has taken place because of Overlooking NGT Court Order and negligence of many departments like, KSPCB, Boilers and safety, Health departments.

8) **Prohibited Use of Petcoke:** Petcoke, a highly polluting banned fuel, is being used in Silicon Carbide production in the name of raw material, despite the availability of multiple substitutes, which contravenes environmental guidelines. How can it be used in the open furnace in the name of raw material.

9) Petcoke, highly inflammable and capable of igniting at 400 - 700°C, is subject to inadequate scrutiny by KSPCB to verify its use as raw material rather than as fuel, which raises significant safety concerns. How can a fuel be used in an open furnace and say it is used as only raw material. It is completely a wrong procedure.

10) **Non-Treatment of Petcoke: As per National Green Tribunal Principal Bench, New Delhi Petcoke is not being treated via flue gas Desulphurization/ degasification/ dehydrogenation processes to remove pollutant gases before use, and these gases are not being flared as required by gas flaring rules. The Said factory doesn't have the required system.**

11) **Violation of Dust and Noise Control Operations:** Contrary to the 2013 consent letter from KSPCB, Paragraph 4.7, **which mandates that all dust or noise-producing operations be contained within closed and insulated premises**, the furnaces are housed in an open hall without adequate scrubber systems or pollution control measures.

12) **Improper Scrutiny of Petcoke Use: Petcoke, highly inflammable and capable of igniting at 400 - 700°C, is subject to inadequate scrutiny by KSPCB to verify its use as raw material rather than as fuel, which raises significant safety concerns.** How can a fuel be used in an open furnace and say it is used as only raw material. It is completely a wrong procedure.

13) **Petcoke is burning in the Acheson Furnace and subsequent violation: Petcoke, highly inflammable and capable of igniting at 400 - 700°C. The furnace reaches up to 2500c in an open furnace allowing the heated Petcoke to be in contact with the Oxygen resulting ignition and burning.** Petcoke can burn up to 2500 c and thus petcock is serving the role as

fuel. They do not use inert gases to prevent the burning of the Petcoke. The phots of furnace burning is attached. They do not have any proper flaring system and do not have permission to install flaring system. (Annexures 7, 9 & 17).

14) **It serves as both a feedstock and a source of heat in the production process.** The high carbon content of Petcoke, which can exceed 90%, makes it an effective fuel for generating the necessary temperatures in industrial furnaces used for SiC synthesis. Therefore, it is used as both as fuel and source of raw material in the pretext of only as raw material.

15) **Violation of NGT Orders:** Despite the National Green Tribunal Principal Bench, New Delhi's order in Original Application No. 138/2019 (I.A. No. 65/2019, I.A. No. 686/2019 & I.A. No. 762/2019) allowing only the use of Calcinated Petcoke as a feedstock, raw Petcoke is being used without proper scrubber systems, effluent plants, or industrial stacks.

16) **Pollution from Furnace Water Cooling:** Water cooling of the furnace produces significant pollution, including emissions of Hydrogen Sulfide (H2S).

17) **Foul Smell Complaints:** Residents report frequent foul smells of SO2 and Hydrogen Sulfide (H2S), corroborated by ambient air quality monitoring (Annexure 15).

18) **Rampant Lung cancer and health issues:** The International Agency for Research on Cancer is an intergovernmental agency forming part of the World Health Organization of the United Nations, whose role is to conduct and coordinate research into the causes of cancer, has identified the incidents of cancer in those who are associated with silicon carbide production in the Acheson furnace. There are several cases of Lung cancer for the people who worked in the factory and those who live within 2 km radius of the factory. Therefore, Petcoke must not be allowed in the production of the SIC in INDIA since it is not the only option for making SIC.

19) To treat or remove $SO_2$ from gas streams (like flue gases), you need chemical treatment systems, such as:

- **Wet Scrubbers:** Use an alkaline solution (like limestone or lime slurry) to absorb and neutralize $SO_2$.
- **Dry Scrubbers:** Spray dry sorbents (e.g., hydrated lime) that react with $SO_2$ to form solid byproducts.
- **Flue Gas Desulfurization (FGD):** Advanced method combining wet/dry scrubbing processes to achieve high $SO_2$ removal efficiency.

➢ **Cyclone separator → removes particulates, not gases like $SO_2$.**

➢ **$SO_2$ removal → requires scrubbing systems or chemical treatments.**

We sincerely hope that you will treat this matter with the **urgency and seriousness** it rightfully deserves. The situation has reached a **critical point**, and immediate intervention is essential to prevent further harm to public health and the environment.

On behalf of all the affected residents, I **humbly request your urgent action** to protect our **fundamental right to live in a clean and healthy environment**, as enshrined under **Article 21 of the Constitution of India**.

Thanking you in anticipation of your prompt and decisive response.

16/09/25

Mr. Jonatt Jose,
S/o. Jose
Choorackal House,
Nalukettu P.O., Nalukettu
Thrissur District, Pin: 680 308
Mob No. 9400165674
E-mail: jonattjose@gmail.com

**Fwd: Public Complaint received regarding alleged Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala –reg.**

**Sreekala S** < chn.kspcb@gov.in >
Mon, 15 Sep 2025 1:12:46 PM +0530

To "CRUCRU"<cru.kspcb@kerala.gov.in>,"kspcbhoconsent2025"<kspcbhoconsent2025@gmail.com>

---

**From:** "CPCB Regional Directorate Bengaluru" <zobangalore.cpcb@nic.in>
**To:** "Sheela A.M" <ms.kspcb@gov.in>, "Sreekala S" <chn.kspcb@gov.in>, kspcbtsr@gmail.com
**Cc:** jonattjose@gmail.com, "Public Complaints" <prc.cpcb@nic.in>
**Sent:** Thursday, September 11, 2025 5:07:09 PM
**Subject:** Public Complaint received regarding alleged Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala – reg.

Sir/Madam,

Please find enclosed herewith a copy of the Public Complaint dated 15.08.2025 forwarded by MoEFCC vide letter dated 21.08.2025 with a request to examine the issues raised by Shri Jonatt Jose, S/o Shri Jose, Choorackal House, Nalukettu P.O., Dist- Thrissur, Kerala requesting action against the unit viz., M/s. Carborundum Universal Limited, Nalukettu, Thrissur, Kerala for alleged Illegal and hazardous industrial practices A copy of the MoEFCC letter dated 21.08.2025 which has already been forwarded by CPCB Delhi to Kerala State Pollution Control Board vide email dated 04.09.2025 for examination and for initiating further necessary action on the matter, is enclosed for ready reference and record please.

In view of the above, it is requested that the Action Taken Report on the above matter may please be arranged to the complainant, with a copy endorsed to CPCB Delhi and to this Regional Directorate for record, at an early date.

Regards

**CPCB Regional Directorate, Bengaluru / सीपीसीबी क्षेत्रीय निदेशालय, बेंगलुरु**

Nisarga Bhawan,A-Block, 1st & 2nd Floors / निसर्ग भवन, ए-ब्लॉक, पहली और दूसरी मंजिल
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Telephone / टेलीफ़ोन: 080-23233739, 23233827, 23233996
Fax / फैक्स: 080-23234059



KSPCB/1329/2023-EE-1 16/09/2025

Copy of the complaint from Sri. Jonatt Jose received through CPCB is endorsed for necessary action and direct reply to the complainant under intimation to this office.

To,
The Environmental Engineer,
District office, Thrissur

for CHAIRPERSON.

**4 Attachment(s)**

| | |
|---|---|
| Public Complaint received reg... 1019.5 KB | Copy to Environmental engine... 1 MB |
| CL MS Kerala SPCB.pdf 870.9 KB | Copy to Complainant.pdf 1 MB |

# Fwd: Public Complaint received regarding alleged Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala –reg.

**Sreekala S** < chn.kspcb@gov.in >

Mon, 15 Sep 2025 1:12:46 PM +0530

To "CRUCRU"<cru.kspcb@kerala.gov.in>,"kspcbhoconsent2025"<kspcbhoconsent2025@gmail.com>

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**To:** "Sheela A.M" <ms.kspcb@gov.in>, "Sreekala S" <chn.kspcb@gov.in>, kspcbtsr@gmail.com
**Cc:** jonattjose@gmail.com, "Public Complaints" <prc.cpcb@nic.in>
**Sent:** Thursday, September 11, 2025 5:07:09 PM
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In view of the above, it is requested that the Action Taken Report on the above matter may please be arranged to the complainant, with a copy endorsed to CPCB Delhi and to this Regional Directorate for record, at an early date.

Regards

**CPCB Regional Directorate, Bengaluru / सीपीसीबी क्षेत्रीय निदेशालय, बेंगलुरु**

Nisarga Bhawan,A-Block, 1st & 2nd Floors / निसर्ग भवन, ए-ब्लॉक, पहली और दूसरी मंजिल
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**4 Attachment(s)**

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| Public Complaint received reg… 1019.5 KB | Copy to Environmental engine… 1 MB |
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(2)

**F. No. Q-16016/79/2025-CPA**
**GOVERNMENT OF INDIA**
**MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE**
**(CP Division)**

2nd Floor, Prithvi Wing,
Indira Paryavaran Bhawan
Aliganj, Jor Bagh Road
New Delhi

Dated: 25th August, 2025

To

**The Member Secretary**
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi- 110032

**Subject: Request for Urgent Action against Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala –reg.**

Sir,

Please find enclosed a copy of representation dated 15.08.2025 from Shri Jonatt Jose, S/o Shri Jose, Choorackal House, Nalukettu P.O., Dist- Thrissur, Kerala regarding hazardous industrial practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala.

2. It is requested to kindly take appropriate action in the matter and action taken report may please be forwarded to the complainant directly, under intimation to this Ministry.

Yours faithfully,

Encl: As above

Sonu Singh

**(Dr. Sonu Singh)**
Scientist 'E'
sonu.singh@gov.in

From

Mr. Jonatt Jose,
S/o. Jose
Choorackal House,
Nalukettu P.O., Nalukettu
Thrissur District, Pin: 680 308
Mob No. 9400165674
E-mail : jonattjose@gmail.com

To

1) Shri. BHUPENDER YADAV
Division/Office: O/o HMEF&CC
Designation: Minister of Environment, Forest and Climate Change
Email: mefcc.@gov.in

2) Shri. KIRTI VARDHAN SINGH
**Division/Office:** O/o HMoS
**Designation:** Minister of State for Environment, Forest and Climate Change
**Email:** mos.kvs@gov.in

3) Mr. Amar Singh
Division/Office: O/o HMEF&CC
Designation: Private Secretary
Email: ps2mefcc@gov.in

Seq - (1 month ASCNPG)

4) Shri Sukant Vatsa
Division/Office: O/o HMoS
Designation: Private Secretary
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5) Mr. TANMAY KUMAR
Division/Office: O/o Secretary (EF&CC)
Designation: Secretary (EF&CC)
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6) Mrs. RAJASREE RAY
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**Email:** rajasree.r@nic.in

7) Mr. Amit Love
Scientist-E, Hazardous Substances Management (HSM), O/o SE
Ministry of Environment, Forest and Climate Change
Email: amit.love@nic.in

8) Dr. SONU SINGH
Division/Office: Control of Pollution (CP), O/o SE (Sonu Singh)
Designation: Scientist E
Email: onu.singh@nic.in

**Subject:** *Request for Urgent Action Against Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala*

**Respected Sir,**

I am **Jonatt Jose**, a resident of Nalukettu P.O., Thrissur District, Kerala. My family, consisting of my wife, three children, and my elderly parents, has lived in this area for generations. I am writing this letter to raise a grave concern that affects not only my family but also the lives and health of over a hundred local residents in the vicinity of **Carborundum Universal Limited**, which operates in the 6th Ward of Nalukettu, just 100 meters from my home.

The factory, established in 1985, manufactures **silicon carbide** through a chemical process involving **petroleum coke (petcoke), silica, and quartz**, which are burned at extremely high temperatures (1200°C – 2400°C). The combustion process emits **toxic gases**, including **carbon dust, sulphur compounds, carbon monoxide, carbon dioxide**, and **nitrogen-based pollutants**.

Over the years, this has resulted in alarming health consequences for the local population, including:

- Chronic respiratory diseases, including asthma and lung infections
- Persistent coughing, vomiting, and allergic reactions
- Headaches, memory loss, skin irritations, and sleeplessness
- More than **50 reported deaths** due to respiratory-related issues, including my grandfather

Despite repeated complaints over the past **10 years** to local authorities including Panchayat members, MLAs, and Pollution Control Board officials **no action** has been taken. Over 80 local residents have signed a **mass petition**, a copy of which has already been submitted to concerned authorities. I was working in the ship but now I have left my job last 3 years and investing my time, money and energy to conscientize the local people about the seriousness of the issues faced by the communities.

**Key Environmental Violations & Concerns:**

1. **Illegal use of Petcoke:** The Hon'ble Supreme Court of India, through orders in W.P. No. 13029/1985 (M.C. Mehta v. Union of India) dated 17-11-2017, and subsequent **National Green Tribunal (NGT)** orders dated 28-03-2019 and 04-07-2019 (O.A No. 67/2019, 138/2019), has clearly restricted the use of petcoke to specific industries such as **cement kilns, lime kilns, calcium carbide, and graphite electrode** sectors. **Carborundum Universal Ltd. does not fall under these permitted categories.**
2. **No proper pollution control systems in place**
   - No **industrial stack** or **effluent treatment plant (ETP)** as per RTI replies from the Kerala Pollution Control Board and Koratty Panchayat.
   - No **gas desulfurization system**, which is mandatory as per Supreme Court directions.
   - Unapproved use of **sulphuric acid** and flaring of toxic gases without any system to handle them safely.
3. **Manipulation of pollution monitoring:**
   - Installation of **air blowers** to redirect toxic fumes away from the **Continuous Ambient Air Quality Monitoring System (CAAQMS)** on factory premises.
   - Pollution readings from the CAAQMS are being **artificially suppressed**, and the display is not accessible to the public.
4. **Excessive Emissions & Environmental Damage:**
   - The company is reportedly burning **more than 45 MT/day** of petcoke, though their permission is for only **20 MT/day**.
   - This leads to estimated **sulphur emissions of 1800–3150 kg per day**, far beyond legal limits.
   - The pollution is corroding local structures and worsening climate change impacts.
5. **Labour Law Violations:**
   - Local and migrant workers are employed as **contract labour** in hazardous production zones.
   - Many are paid less than ₹700/day and denied basic labour rights.
6. **Health Reports & Professional Advice:**
   - Medical professionals have advised my family to relocate due to the **extreme health hazards** caused by the factory's emissions.

Despite our efforts and the acknowledgment of the pollution problem by **Mrs. Soumya A.S. (Assistant Environmental Engineer, KSCSTE)** and other officials, the company continues

to operate **without proper regulatory oversight or compliance**. Their response has often included **threats of legal action** against complainants instead of taking corrective measures.

**Request for Immediate Action:** We respectfully urge your office to:

- **Conduct a high-level environmental audit** of Carborundum Universal Ltd., including analysis of emissions, raw material usage, and safety systems
- Verify whether their operations are **permitted under current MoEF&CC, CPCB, and NGT guidelines**
- **Suspend or revoke licenses** if non-compliance is proven
- Direct the Pollution Control Board and Local Authorities to **cease operations** until all mandated environmental safeguards are implemented
- Investigate **labour exploitation** and ensure compliance with the **Factories Act and Minimum Wages Act**
- Ensure **transparency of CAAQMS data** to the public in real-time

This is not merely a local issue it is a matter of **public health, environmental justice, and compliance with national and international climate commitments**. The factory's practices are not only unethical but also blatantly illegal and in contempt of Supreme Court and NGT directives.

We hope that you will treat this matter with the **urgency and seriousness** it deserves. On behalf of the affected residents, I humbly request your intervention to protect our right to live in a clean and healthy environment, as guaranteed under **Article 21 of the Constitution of India**.

Thanking you, Yours faithfully,

Mr. Jonatt Jose,
S/o. Jose
Choorackal House,
Nalukettu P.O., Nalukettu
Thrissur District, Pin: 680 308
Mob No. 9400165674

15/08/25

Jonatt

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

By Speed Post/Email

F. No. PI-14/1/2022-TECH-RD-BENGALURU/459 Dated 11.09.2025

To

The Member Secretary
Kerala State Pollution Control Board
Head Office, Pattom, P. O.
Thiruvananthapuram - 695004, Kerala

**Sub: Public Complaint received regarding alleged Illegal and Hazardous Industrial Practices by Carborundum Universal Limited, Nalukettu, Thrissur, Kerala –reg.**

Madam,

Please find enclosed herewith a copy of the Public Complaint dated 15.08.2025 forwarded by MoEFCC vide letter dated 21.08.2025 with a request to examine the issues raised by Shri Jonatt Jose, S/o Shri Jose, Choorackal House, Nalukettu P.O., Dist- Thrissur, Kerala requesting action against the unit viz., M/s. Carborundum Universal Limited, Nalukettu, Thrissur, Kerala for alleged Illegal and hazardous industrial practices A copy of the MoEFCC letter dated 21.08.2025 which has already been forwarded by CPCB Delhi to Kerala State Pollution Control Board vide email dated 04.09.2025 for examination and for initiating further necessary action on the matter, is enclosed for ready reference and record please.

In view of the above, it is requested that the Action Taken Report on the above matter may please be arranged to the complainant, with a copy endorsed to CPCB Delhi and to this Regional Directorate for record, at an early date.

Yours faithfully

(J Chandra Babu)
Regional Director

*Encl. : As above*

**Copy to:**

1. Environmental Engineer, Kerala State Pollution Control Board - Thrissur District, Majestic Hypermarket, 3rd Floor, Paravattani, Ollukkara P.O.,Thrissur-680655 : For information and with a request to examine and for taking necessary action on the matter, pl.
2. Shri Jonatt Jose, S/o Shri Jose, Choorackal House, Nalukettu P.O., Dist- Thrissur 680308 : For kind information, please.
3. DH, PR Division, CPCB, Parivesh Bhawan, East Arjun Nagar, Delhi-110032 : For record, pl.

11/09/2025

(J Chandra Babu)

क्षेत्रीय निदेशालय (बेंगलूरु) : निसर्ग भवन, ए-ब्लाक, प्रथम एवं द्वितीय तल, तिम्मय्या रोड, 7-डी मेन, शिवनगर-560 079.
Regional Directorate (Bengaluru) : "Nisarga Bhawan", A-Block, 1st & 2nd Floors, Thimmaiah Road, 7th D - Main, Shivanagar, Bengaluru - 560 079.
दूरभाष / Telephone : 080-23233739, 23233827, 23222539, Fax : 080-23234059
ई-मेल / E-mail: zobangalore.cpcb@nic.in

प्रधान कार्यालय: परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
Head Office : Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032
दूरभाष / Telephone : 011-43102030, Fax: 22305792

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

**By Speed Post/Email**

**F. No. PI-14/1/2022-TECH-RD-BENGALURU/** 4456

**Dated 11.09.2025**

To

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Kerala State Pollution Control Board
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Thiruvananthapuram - 695004, Kerala

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11/09/2025

**(J Chandra Babu)**
**Regional Director**

***Encl. : As above***

क्षेत्रीय निदेशालय (बेंगलूरु) : निसर्ग भवन, ए-ब्लाक, प्रथम एवं द्वितीय तल, तिम्मय्या रोड, 7-डी मेन, शिवनगर-560 079.
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LiFE
Lifestyle for Environment

# केन्द्रीय प्रदूषण नियंत्रण बोर्ड
## CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

By Speed Post/Email

F. No. PI-14/1/2022-TECH-RD-BENGALURU/460 Dated 11.09.2025

To

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11/09/2025
(J Chandra Babu)

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**BEFORE THE GREEN TRIBUNAL**
**SOUTHERN BRANCH CHENNAI**

**Application No 39 of 2024 (SZ)**

**In the Matter of**

**Mr. Jonatt Jose**

**Applicant**

**Versus**

**The Secretary, MoEF&CC & others**

**Respondents**

# REPLY STATEMENT IN RESPONSE TO THE REPORT SUBMITTED BY THE 6th RESPONDENT

M/s. P. PRAKASH PAUL

COUNSEL FOR APPLICANT

Mob: 9841153860