

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA**

ORIGINAL APPLICATION NO. 149/2023

IN THE MATTER OF:

Shri Biswajit Mukherjee & Anr.

... Applicants

VS

Union Of India & Ors

... Respondents

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Kolkata

Dated : 12th February, 2024

Respondent No. 8

Through

Amrita Pandey
Advocate

SL. NO. 390/2024

-1-

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA**



ORIGINAL APPLICATION NO. 149/2023

IN THE MATTER OF:

Shri Biswajit Mukherjee & Anr.

...Applicants

**BEFORE THE NOTARY PUBLIC
AT BIDHANNAGAR
DIST.-NORTH 24 PARGANAS**

VS

Union Of India & Ors

...Respondents

**AFFIDAVIT ON BEHALF OF RESPONDENT No. 8- MINISTRY OF
ENVIRONMENT, FOREST AND CLIMATE CHANGE.**

I, Shri Sujoy Dutta, son of Shri Samir Dutta, aged about 43 years, presently working as 'Assistant Commissioner (Forestry)' at the Sub Office Kolkata of Bhubaneswar Regional Office under the Ministry of Environment, Forest and Climate Change, having its office at IB-198, Sector- III, Salt Lake City, Kolkata – 700 106, do hereby solemnly affirm, declare and state as follows:

1. That, I am well acquainted with the facts and circumstances of the case and competent to swear this affidavit on behalf of MoEF&CC being the Respondent in the present Application.
2. That the Answering Respondent is engaged in, *inter alia*, policy formulation for abatement, control, and prevention of pollution and prescribing environmental standards to be implemented through the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs).

Besides, the concerned State Pollution Control Boards/Pollution Control Committees are empowered to take all such measures as are deemed

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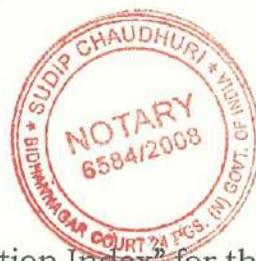


necessary or expedient for the purpose of protection and improving the quality of the environment as well as prevention, control, and abatement of environmental pollution.

3. That, it is submitted that vide Hon'ble National Green Tribunal order dated 10.01.2024, the Respondent Ministry in consultation with CSIR-NEERI, PESO and CPCB has systematize information which includes the Emission Test Report for Green & Conventional Crackers giving definitions and formulations of Green Crackers (including new and improved formulation) received from NEERI. A copy of the formulations received from CSIR-NEERI is placed at **Annexure -1**.
4. That, it is submitted that CSIR-NEERI has provided with the Emission Test Report with respect to the fireworks made with the new formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI. A copy of the Emission Test Report received from CSIR-NEERI is placed at **Annexure -2**.
5. That, it is submitted that Central Pollution Control Board (CPCB) has developed criteria of categorization of industrial sectors during year 2016 to classify the industries based on the Pollution Index (PI) which is a function of Water pollution, Air pollution, Hazardous waste generation, fuel consumption and amount of waste water generation. The purpose of categorization is to maintain uniformity, to ensure that the industry is established in a manner consistent with the environmental objectives and to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in generation of no or minimum pollutants. The increasing value of PI denotes the increasing degree of pollution hazard from the industrial sector. The

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following criteria with regard to the "Range of Pollution Index" for the purpose of categorization of industrial sectors is used:

- i. Industrial sectors having PI score of 60 and above –Red category
- ii. Industrial sectors having PI score of 41 to 59 –Orange category
- iii. Industrial sectors having PI score of 21 to 40 –Green category Industrial sectors having PI score inclusive & upto 20 –White category

6. That, it is submitted that the newly introduced White category/non-polluting industry sectors are exempted from obtaining consent and an intimation to concerned SPCBs/PCCs shall suffice. Based on criteria and guidelines, CPCB categorized 257 industrial sectors under Red (63), Orange (91), Green (65) and White (38) in year 2016 wherein "Fire crackers manufacturing and bulk storage facilities" were categorized as Red category with PI score of 67. All the SPCBs/PCCs were directed vide CPCB'S letter dated 07.03.2016, under Section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 to adopt the revised criteria of categorization of industrial sectors. Two paragraphs of the directions are reproduced below:

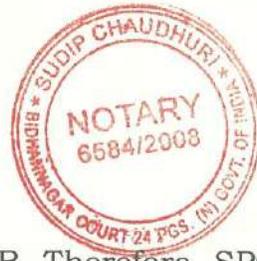
As per para 04, "Siting of these industries shall be only in conforming areas. SPCB/PCCs shall evolve sector specific plans for control of pollution and industrial surveillance for verifying compliance."

As per para 07 "...any further addition of any new or left-over industrial sector and their categorization which is not listed in the revised list of Red, Orange, Green and White industrial sectors, shall be done at the level of concerned SPCB/PCC following revised criteria and guidelines as detailed in the attached document and no concurrence of CPCB shall normally be required..."

That, referring above directions and categorization it is to submit that, based on PI score "Fire crackers manufacturing and bulk storage facilities" was categorized into Red category in 2016 considering conventional/common firecrackers. However, CPCB on 07.03.2016 directed SPCBs/PCCs to categorize any new/left out sector at the level of concerned SPCB/PCC,

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following the methodology prescribed by CPCB. Therefore, SPCB/PCC may categorize manufacturing of green crackers into White or other categories, following the criteria and guidelines prescribed by CPCB.

7. The Answering Respondent craves leave of this Hon'ble Court to add, amend or alter the said Affidavit if so required.

It is humbly prayed that the Hon'ble Court may kindly pass such order (s) as may be deemed fit and proper in the facts and circumstance of this case.

DEPONENT

सुजय दत्ता / SUJOY DUTTA

सहायक आयुक्त(वानिकी)/ASST. COMMISSIONER (FORESTRY)
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
क्षेत्रीय कार्यालय, भुवनेश्वर / REGIONAL OFFICE, BHUBANESWAR
उप-कार्यालय, कोलकाता / SUB-OFFICE, KOLKATA
आई बी-198, सेक्टर III, साल्ट लेक सिटी, कोलकाता-700106
IB-198, SECTOR-III, SALT LAKE CITY, KOLKATA - 700106

VERIFICATION

Verified at Kolkata on the 12th of February, 2024 that the contents of the above affidavit are true and correct to the best of my knowledge and belief and nothing material has been suppressed or concealed therein.

DEPONENT

सुजय दत्ता / SUJOY DUTTA

सहायक आयुक्त(वानिकी)/ASST. COMMISSIONER (FORESTRY)
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
क्षेत्रीय कार्यालय, भुवनेश्वर / REGIONAL OFFICE, BHUBANESWAR
उप-कार्यालय, कोलकाता / SUB-OFFICE, KOLKATA
आई बी-198, सेक्टर III, साल्ट लेक सिटी, कोलकाता-700106
IB-198, SECTOR-III, SALT LAKE CITY, KOLKATA - 700106

S. CHAUDHURI
★ NOTARY ★
GOVT. OF INDIA
Regd. No.-6584/08
Bidhannagar Court
North 24 Pgs

12 FEB 2024



Annexure – 1

Definition of Green Crackers

1. Improved fireworks/firecrackers:

Fireworks/firecrackers made with reduction in size of shell, elimination of ash usage etc., reduced usage of raw materials in the compositions, of uniform acceptable quality, and/or use of additives as dust suppressants to reduce emissions with specific reference to particulate matter (PM*), SO₂ and NO₂ leading to:

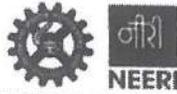
- a minimum of PM reduction of 30 %
- a minimum of PM reduction of 20% and rest 10% of gaseous emission (mass of gases emitted based on composition) or more reduction of gaseous emission (mass of gases emitted based on composition).
- All of the above reduction shall be based on when compared with conventional composition for a given category of crackers/fireworks.

2. New formulation fireworks/fire crackers:

Fireworks/fire crackers having new and improved formulations (substitution and reduction of raw materials in composition) to reduce emissions with specific reference to particulate matter (PM*), SO₂ and NO₂ as:

- a minimum of PM reduction of 30 %
- a minimum of PM reduction of 20% and rest 10% of gaseous emission (mass of gases emitted based on composition).
- All of the above reduction shall be based on when compared with conventional composition for a given category of crackers/fireworks.

*metals are subset of PM



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

Date: 10/10/2023

NEW FORMULATION FOR FLOWERPOT
(Flowerpot Special**)

Table with 5 columns: Composition (%), Potassium Nitrate, Aluminium Powder 666, Aluminium Chips, CSIR NEERI'S Additive Zpt*. Row 1: New Formulation - Flowerpot Special. Row 2: % PM Reduction in New Formulation.

This is to report that the fireworks made with above new formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions -- Height= 50 mm, Diameter= 30 mm, Chemical Weight = 5 g ±5%

DIRECTOR

निदेशक / Director

सी.एस.आई.आर.-राष्ट्रीय पर्यावरण अभियांत्रिकी अनुसंधान संस्थान
CSIR-National Environmental Engineering Research Institute
नेहरू मार्ग, नागपुर-440 020 (भारत)
Nehru Marg, Nagpur-440 020 (India)

Manufacturer's Name: M/s. Sankamithra Fireworks
Explosive Licence No.: E/SS/TN/20/71(E126392)
CSIR-NEERI Registration No.: NE/TN/788-01/2022
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0229

Dr. Sadhana Rayalu
Chief Scientist & Head, EMD
CSIR-NEERI, Nagpur
Dr. Sadhana S. Rayalu
वैज्ञानिक एवं प्रमुख
संशोधनकर्ता
पर्यावरणीय सामग्री विभाग
Environmental Materials Division
सी.एस.आई.आर.
NEERI, Nagpur-20



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

Date: 10/10/2023

NEW FORMULATION FOR FLOWERPOT
(Flowerpot Giant**)

Composition (%)	Strontium Nitrate	Potassium nitrate	Al 333	Al chips 20+40	sulphur	Boric acid	CSIR NEERI'S Additive Zpt*
New Formulation – Flower pot Giant	23.0	18.0	23.0	23.5	1.0	0.5	11.0
% PM Reduction In New Formulation	Upto 30 %						

This is to report that the fireworks made with above New formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions – Height = 80 mm, Diameter = 50 mm, Chemical Weight = 24.5 g ±5%

DIRECTOR

निदेशक / Director

CSIR-National Environmental Engineering Research Institute
नेहरू मार्ग, नागपुर-440 020 (महाराष्ट्र)
Nehru Marg, Nagpur-440 020 (India)

Manufacturer's Name: M/s. Ayyan Fireworks Factory (P)Ltd., and other Groups of factories
Explosive Licence No.: As Per Annexure-I
CSIR-NEERI Registration No.: As Per Annexure-I
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0232

Dr. Sadhana Rayalu
Chief Scientist & Head, EMD
CSIR-NEERI, Nagpur
Dr. Sadhana S. Rayalu
वैज्ञानिक एवं प्रमुख
Scientist & Head
पर्यावरणीय प्रदूषण
Environmental Materials Division
नेहरू मार्ग, नागपुर-440 020



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date: 10/10/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

**NEW FORMULATION FOR FLOWERPOT
(Flowerpot deluxe 2 piece**)**

Composition (%)	Strontium Nitrate	Potassium nitrate	Al 333	Al chips 20+40	sulphur	Boric acid	CSIR NEERI'S Additive Zpt*
New Formulation – Flower deluxe 2 piece	23.0	18.0	23.0	23.5	1.0	0.5	11.0
% PM Reduction In New Formulation	Upto 30 %						

This is to report that the fireworks made with above New formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions – Height = 125mm, Diameter = 75 mm, Chemical Weight = 18.5 g ±5%

DIRECTOR

निदेशक / Director

सी.एस.आई.एन. - राष्ट्रीय पर्यावरण अभियानिकी अनुसंधान संस्थान
CSIR-National Environmental Engineering Research Institute
नेहरू मार्ग, नागपुर-440 020 (भारत)
Nehru Marg, Nagpur-440 020 (India)

Manufacturer's Name: M/s. Ayyan Fireworks Factory (P)Ltd., and other Groups of factories
Explosive Licence No.: As Per Annexure-I
CSIR-NEERI Registration No.: As Per Annexure-I
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0233

Sadhana
Dr. Sadhana Rayalu
Chief Scientist & Head, EMD
CSIR-NEERI, Nagpur
डा. साधना रायलु
Or. Sadhana R. Rayalu
वैज्ञानिक एवं प्रमुख
Scientist & Head
पर्यावरणीय अस्त्रास्त्र विभाग
Environmental Materials Division
नेेरी नागपुर - ३०
NEERI, Nagpur



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date 10/10/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

NEW FORMULATION FOR FLOWERPOT
(Flowerpot deluxe 5 piece**)

Table with 8 columns: Composition (%), Strontium Nitrate, Potassium nitrate, Al 333, Al chips 20+40, sulphur, Boric acid, CSIR NEERI'S Additive Zpt*. Row 1: New Formulation - Flowerpot deluxe 5 piece. Row 2: % PM Reduction In New Formulation.

This is to report that the fireworks made with above New formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions - Height = 121 mm, Diameter = 63 mm, Chemical Weight = 51 g ±5%

DIRECTOR

निदेशक / Director
सी.एस.ई.आर.-राष्ट्रीय पर्यावरण अभियांत्रिकी अनुसंधान संस्थान
CSIR-National Environmental Engineering Research Institute
नेहरू मार्ग/, नगपुर-440 020 (भारत)
Nehru Marg, Nagpur-440 020 (India)

Manufacturer's Name: M/s. Ayyan Fireworks Factory (P)Ltd., and
other Groups of factories
Explosive Licence No.: As Per Annexure-I
CSIR-NEERI Registration No.: As Per Annexure-I
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0234

Dr. Sadhana Rayalu
Chief Scientist & Head, EMD
CSIR-NEERI, Nagpur
Scientist & Head
पर्यावरणीय पदार्थ विभाग
Environmental Material Division
नेरी नगपुर-20
NEERI, Nagpur-20



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date: 10/10/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

**NEW FORMULATION FOR FLOWERPOT
(Colour Koti deluxe**)**

Composition (%)	Strontium Nitrate	Potassium nitrate	Al 333	Al chips 20+40	sulphur	Boric acid	CSIR NEERI'S Additive Zpt*
New Formulation – Colour Koti deluxe	23.0	18.0	23.0	23.5	1.0	0.5	11.0
% PM Reduction In New Formulation	Upto 30 %						

This is to report that the fireworks made with above New formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions – Height = 121 mm, Diameter = 63 mm, Chemical Weight = 51 g ±5%

Manufacturer's Name: M/s. Ayyan Fireworks Factory (P)Ltd., and other Groups of factories
Explosive Licence No.: As Per Annexure-I
CSIR-NEERI Registration No.: As Per Annexure-I
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0235

DIRECTOR
निदेशक / Director
सी एस ई आर - एन ई ई
CSIR-National Environmental Engineering Research Institute
NEERI, Nagpur, Maharashtra
Nehru Marg, Nagpur-440 020 (India)

Rajesh
Dr. Sankar Anand
Chief Scientist in Charge, EMD
CSIR-NEERI, Nagpur
Environmental Sciences Division
NEERI, Nagpur-440 020



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Annexure-I

SR. NO	UNITS	REGISTRATION NUMBER	EXPLOSIVES LICENCE NO
1	M/s. Ayyan Fireworks Factory Pvt. Ltd., Vijayarangapuram	NE/TN/29/01/2019	E/HQ/TN/20/776 (E27472)
2	M/s. Ayyan Fireworks Factory (P) Ltd, Vijayarangapuram	NE/TN/29/02/2019	E/HQ/TN/20/879 (32174)
3	M/s. Ayyan Fireworks Factory (P) Ltd, Panaiyadipatti	NE/TN/29/03/2019	E/HQ/TN/20/821 (E32087)
4	M/s. Ayyan Fireworks Factory (P) Ltd, Thiruthangal	NE/TN/29/04/2019	E/HQ/TN/20/909 (E32251)
5	M/s. Ayyan Fireworks Factory (P) Ltd, Nathikudi	NE/TN/29/05/2019	E/HQ/TN/20/851 (E32135)
6	M/s. Ayyan Fireworks Factory (P) Ltd, Malli	NE/TN/29/06/2019	E/HQ/TN/20/977(E32336)
7	M/s. Ayyan Fireworks Factory (P) Ltd, V. Muthulingapuram	NE/TN/29/07/2019	E/HQ/TN/20/1227(E47404)
8	M/s. Ayyan Fireworks Factory (P) Ltd, Soorarpatti	NE/TN/29/08/2019	E/SC/TN/20/87(E11942)
9	M/s. The Graham Fireworks Factory anaiyur	NE/TN/29/09/2019	E/HQ/TN/20/1255 (E56862)
10	M/s. Ayyan Fireworks Factory (P) Ltd, Sirukulam	NE/TN/29/10/2019	E/SC/TN/20/486(E52282)
11	M/s. Ayyan Sparklers (P) Ltd., Malli Village	NE/TN/29/11/2019	E/HQ/TN/20/1274(E27858)
12	M/s. Ayyan Fireworks Factory, Sevalpatti	NE/TN/29/12/2019	E/HQ/TN/20/935(E32285)


 निदेशक / Director
 कौशल शर्मा अवर - राष्ट्रीय पर्यावरण अभियांत्रिकी अनुसंधान संस्थान
 CSIR-National Environmental Engineering Research Institute
 नेहरू मार्ग, नागपुर-440 020 (भारत)
 Nehru Marg, Nagpur-440 020 (India)


 Rayah



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date: 19/12/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

**NEW FORMULATION FOR RED SPARKLER
(Red Sparkler 10 cm**)**

Composition (%) →	Strontium Nitrate	Fe Powder	Aluminium 999	Mg Al	Dextrin	CSIR NEERI'S Additive Zpt*
New Formulation – Red Sparkler 10 cm	58.0	5.0	14.0	5.0	13.0	5.0
% PM Reduction in New Formulation	Upto 30 %					

This is to report that the fireworks made with above new formulations (conventional oxidiser including Strontium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

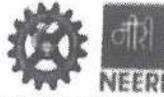
*Zpt = Zeolite Pellets

**Cracker Dimensions – Sparklers length= 16 cm, chemical length=10 cm, Chemical Weight = 3 g ±5%

Am
DIRECTOR

Manufacturer's Name: M/s. Stand Sparklers
Explosive Licence No.: E/SS/TN/20/76(E133236)
CSIR-NEERI Registration No.: NE/TN/849-01/2023
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0267

R. J. Krupadam
19.12.2023
Dr. R. J. Krupadam
Sr. Principal Scientist & HOD,
CC&GMD
CSIR-NEERI, Nagpur



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date: 19/12/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

**NEW FORMULATION FOR RED SPARKLER
(Red Sparkler 12 cm**)**

Composition (%)	Strontium Nitrate	PVC	Aluminium Powder	Mg Al	Dextrin	CSIR-NEERI'S Additive Zpt*
New Formulation - Red Sparkler 12 cm	54.22	10.85	12.65	5.43	10.85	6.0
% PM Reduction in New Formulation	Upto 30%					

This is to report that the fireworks made with above new formulations (conventional oxidiser including Strontium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions - Sparklers length= 24 cm, chemical length=12 cm, Chemical Weight =7 g ±5%

DIRECTOR

Manufacturer's Name: M/s. Sri Karpagam Sparklers
Explosive Licence No.: E/SS/TN/20/77(E126784)
CSIR-NEERI Registration No.: NE/TN/852-01/2023
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0266

19/12/2023
Dr. R. J. Krupadam
Sr. Principal Scientist & HOD,
CC&GMD
CSIR-NEERI, Nagpur



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date: 19/12/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

**NEW FORMULATION FOR PENCIL
(Pencil**)**

Composition (%)	Potassium nitrate	Al 666	Al 999	Al chips	Sulphur	CSIR NEERI'S Additive Zpt*
New Formulation – Pencil	62.0	6.0	12.0	5.0	5.0	10.0
% PM Reduction In New Formulation	Upto 30%					

This is to report that the fireworks made with above New formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions – Height = 175 mm, Diameter = 7 mm, Chemical Weight = 5g ±5%

DIRECTOR *AW*

Manufacturer's Name: M/s. Ayyan Fireworks Factory (P)Ltd.,
and other Groups of factories
Explosive Licence No.: As Per Annexure-I
CSIR-NEERI Registration No.: As Per Annexure-I
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0263

14-12-2023
Dr. R. J. Krupadam
Sr. Principal Scientist & HOD,
CC&GMD
CSIR-NEERI, Nagpur



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date: 19/12/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

NEW FORMULATION FOR LIFTING CHARGE
(Lifting Charge**)

Composition (%)	Potassium nitrate	Charcoal	Sulphur	Dextrin	CSIR NEERI'S Additive Zpt*
New Formulation – Lifting Charge	65.0	12.0	9.0	5.0	9.0
% PM Reduction In New Formulation	Upto 30 %				

This is to report that the fireworks made with above New formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets
**Cracker Dimensions – NIL

DIRECTOR *AW*

Manufacturer's Name: M/s. Ayyan Fireworks Factory (P)Ltd.,
and other Groups of factories
Explosive Licence No.: As Per Annexure-I
CSIR-NEERI Registration No.: As Per Annexure-I
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0265

[Signature]
19.12.2023
Dr. R. J. Krupadam
Sr. Principal Scientist & HOD,
CC&GMD
CSIR-NEERI, Nagpur



CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE, NEHRU MARG, NAGPUR-20

Date: 19/12/2023

To,
The Deputy Chief Controller of Explosives,
O/o Petroleum and Explosives Safety Organization,
Near ESI Hospital,
Sivakasi West

**NEW FORMULATION FOR DELUXE PENCIL
(Deluxe Pencil**)**

Composition (%)	Potassium nitrate	Al 666	Al 999	Al chips	Sulphur	CSIR NEERI'S Additive Zpt*
New Formulation – Deluxe Pencil	62.0	6.0	12.0	5.0	5.0	10.0
% PM Reduction In New Formulation	Upto 30%					

This is to report that the fireworks made with above New formulations (conventional oxidiser including Potassium Nitrate and CSIR-NEERI's additive) classified as green crackers meets the guidelines of reduced emissions of PM2.5 and PM10 by 25-30%, based on emission tests conducted at CSIR-NEERI.

*Zpt = Zeolite Pellets

**Cracker Dimensions – Height = 300 mm, Diameter = 8 mm, Chemical Weight = 8 g ±5%

DIRECTOR

Ans

19/12/23

Manufacturer's Name: M/s. Ayyan Fireworks Factory (P)Ltd.,
and other Groups of factories
Explosive Licence No.: As Per Annexure-I
CSIR-NEERI Registration No.: As Per Annexure-I
CSIR-NEERI Report No.: NE/EMD/ETC/2023-0264

[Signature]
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Annexure-I

SR. NO	UNITS	REGISTRATION NUMBER	EXPLOSIVES LICENCE NO
1	M/s. Ayyan Fireworks Factory Pvt. Ltd., Vijayarangapuram	NE/TN/29/01/2019	E/HQ/TN/20/776 (E27472)
2	M/s. Ayyan Fireworks Factory (P) Ltd, Vijayarangapuram	NE/TN/29/02/2019	E/HQ/TN/20/879 (32174)
3	M/s. Ayyan Fireworks Factory (P) Ltd, Panaiyadiatti	NE/TN/29/03/2019	E/HQ/TN/20/821 (E32087)
4	M/s. Ayyan Fireworks Factory (P) Ltd, Thiruthangal	NE/TN/29/04/2019	E/HQ/TN/20/909 (E32251)
5	M/s. Ayyan Fireworks Factory (P) Ltd, Nathikudi	NE/TN/29/05/2019	E/HQ/TN/20/851 (E32135)
6	M/s. Ayyan Fireworks Factory (P) Ltd, Malli	NE/TN/29/06/2019	E/HQ/TN/20/977(E32336)
7	M/s. Ayyan Fireworks Factory (P) Ltd. V. Muthulingapuram	NE/TN/29/07/2019	E/HQ/TN/20/1227(E47404)
8	M/s. Ayyan Fireworks Factory (P) Ltd, Soorapatti	NE/TN/29/08/2019	E/SC/TN/20/87(E11942)
9	M/s. The Graham Fireworks Factory anaiyur	NE/TN/29/09/2019	E/HQ/TN/20/1255 (E56862)
10	M/s. Ayyan Fireworks Factory (P) Ltd, Sirukulam	NE/TN/29/10/2019	E/SC/TN/20/486(E52282)
11	M/s. Ayyan Sparkiers (P) Ltd., Malli Village	NE/TN/29/11/2019	E/HQ/TN/20/1274(E27658)
12	M/s. Ayyan Fireworks Factory, Sevalpatti	NE/TN/29/12/2019	E/HQ/TN/20/935(E32285)