

**BUREAU OF INDIAN STANDARDS**

**MINUTES OF MEETING**

**EXPLOSIVES AND PYROTECHNICS SECTIONAL COMMITTEE, CHD 26**

**Twenty Ninth Meeting**

Day and date        **Monday, 30 September 2024**  
Time                **10:30 AM**  
Venue                **White Room, Manak Bhawan (BIS), New Delhi (Hybrid)**

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**CHAIRMAN:**                                *Dr. A P Dash, Director – DRDO-HEMRL, Pune*

**MEMBER-SECRETARY:**    *Shri Mohit Garg, Scientist – C, BIS, New Delhi*

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The list of attendees is attached at **Annex-I**.

**Item 1 OPENING OF THE MEETING**

**1.1 Welcome by Bureau of Indian Standards**

On behalf of BIS, the member secretary warmly welcome the chairperson and all the members to the meeting and briefed the agenda to the committee.

**1.2 Opening remarks by the Chairman**

The chairperson extended the warm welcome to all the participants and expressed his desire for a fruitful discussion for timely completion of the documents.

**Item 2 CONFIRMATION OF THE MINUTES OF THE 28<sup>th</sup> MEETING**

The committee confirmed the minutes of the 28<sup>th</sup> meeting of Explosives and Pyrotechnics Sectional Committee, CHD 26 held on 28.12.2023 through VC which were circulated to all the members of CHD 26 vide email dated 30.01.2024.

**Item 3 COMPOSITION OF CHD 26 AND ITS PANELS**

**3.1** The committee reviewed and confirmed the scope and composition of CHD 26 and its subcommittees as given at **Annex – II** incorporating the changes given at 3.2.

**3.2 Change in Nominations in CHD 26 Explosives & Pyrotechnic Sectional Committee**

- i. From IDL Explosives Ltd., Hyderabad, Shri N Venkatesh shall be the new alternate member.
- ii. From CQA, ME, Shri R Raghunath shall be the new alternate member.

- iii. The committee co-opted DRDO-CFEES, and Ms. Hemlata Gautam – Sc. ‘F’ shall represent as principal member and Shri Gulshan Kumar Singla – Sc. ‘F’ shall represent as alternate member.
- iv. From The Coronation Fireworks Factory, Sivakasi, Shri K Jeyakumar shall be the new principal member.
- v. The committee approved Dr. S K Dixit (Dy. CCE) as the new convener of CHD 26: SC 4 Explosives Subcommittee and Dr. R K S Chauhan (Dy. CCE) as the new convener of CHD 26: SC 1 Raw Materials Subcommittee.
- vi. The committee co-opted Dr. Onkar S Mondhe in personal capacity.
- vii. The committee co-opted Keltech Energies Ltd. and Dr. Atul P Dwivedi shall represent as the principal member.
- viii. Due to non-participation of CPCB and their interest being limited to firecrackers, the committee decided to withdraw the nomination of CPCB from the CHD 26 committee and co-opt them in pyrotechnics subcommittee.
- ix. From DGMS, Dhanbad, Shri Deepak Prabhakar shall be the new alternate member.

#### **Item 4 DRAFT STANDARDS FOR FINALIZATION FOR PRINTING**

**4.1** The committee noted that in the 27th meeting, the committee directed the member secretary to prepare the revised drafts for the following Indian Standards by incorporating the editorial changes as per the latest standard format and statutory changes as per the BIS Act 2016 and rules and regulations framed thereunder. Accordingly, these drafts were sent for wide circulation on 19 Oct 2023 for a period of 2 months. The comments received during the circulation were placed before the committee for discussion and finalization in the 28<sup>th</sup> meeting, however the committee noticed that some of these drafts need further review and improvements. The member secretary collected the inputs as directed by the committee and some of these documents have also been discussed in the 26: SC 1 subcommittee on 19<sup>th</sup> Sept 2024. The committee further deliberated on the following documents and decided as follows:

<b>S. No.</b>	<b>IS No. &amp; Title</b>	<b>Decision of Committee in 28<sup>th</sup> meeting</b>	<b>Decision of the Committee in 29<sup>th</sup> meeting</b>
i.	<b>IS 1091: 1985</b> Specification for Nitrocellulose	Some editorial changes were suggested by the HEMRL.	The committee reviewed the draft and finalized the draft for printing. The finalized draft is attached at <b>Annex-III</b> .
ii.	<b>IS 7124: 1973</b> Specification for gun powder	The member secretary with the help of CQA (ME), Pune shall collect the inputs from the manufacturers of the product (gun powder).	In the meeting it was decided that: <ul style="list-style-type: none"> <li>1. The referred standards to be updated to their newer versions.</li> <li>2. In clause 3, further categorization may be done on granulated type gun powder based on defense standard 1376.</li> <li>3. In table 1, the referred clauses of IS 6609 (Part 1) for test methods need to be corrected.</li> <li>4. The burning speed to be changed to <math>96 \pm 3</math></li> </ul>

			s/100cm. The committee after incorporating the above changes recommended the draft for finalization.
iii.	<b>IS 7401: 1987</b> Specification for paraffin wax for explosive and pyrotechnic industry (First Revision)	Some editorial changes were suggested by HEMRL, and reference to the correct IS standard in place of IS 5741 which has been withdrawn, and formulate a sampling plan taking reference from IS 1447 (Part 1).	The committee noted that the draft is under preparation by the member secretary based in the decision of the committee in 28 <sup>th</sup> meeting. The committee decided that once these changes are incorporated, the draft may be sent for publication after the chairperson approval.
iv.	<b>IS 7886: 1997</b> Barium chromate for explosives and pyrotechnic industry - Specification (First Revision)	The member secretary shall update the draft by taking assistance from defense standard which will be provided by CQA (ME), Pune and change the scope to defense applications only.	The subcommittee in its last meeting reviewed and recommended the updated draft attached at <b>Annex-IV</b> for finalization after incorporating changes in the test method for determination of Barium Chromate content as per the defence standard. It was also decided that HEMRL will provide recommendation on ICP-OES method for determination of Ba Content. The committee decided to send the draft for printing after the HEMRL recommendation on incorporating ICP-OES method for determination of Ba Content and with the approval of chairperson.
v.	<b>IS 10977: 1983</b> Specification for pentaerythritol for explosive industry	The member secretary shall update the draft in consultation with CQA (ME), Pune.	The committee noted that the CHD 26: SC 1 subcommittee had deliberated on the requirement of di-penta content in grade 2 and decided not to modify the requirement as it is of lower quality than grade 1. On the recommendation of CHD 26: SC 1, the committee approved the draft as attached at <b>Annex-V</b> for finalization.
vi.	<b>IS 12437: 1988</b> Specification for zirconium powder for use in explosive and pyrotechnic industry	The member secretary shall update the draft by taking inputs from NFC, Hyderabad. Member secretary may also take help from HEMRL in contacting NFC, Hyderabad, if required.	The committee noted that the inputs of NFC, Hyderabad are vital for revision of this standard. This product is mainly used in defence applications. HEMRL proposed to review the draft and provide their inputs based on which the draft may be updated and finalized. The committee decided to review and finalize the draft in its next meeting.
vii.	<b>IS 12681: 1989</b> Sodium nitrate for explosives and pyrotechnic industry - Specification	The member secretary shall update the draft by taking inputs from Deepak Nitrites.	The committee reviewed the updated draft after incorporating changes as recommended by the Deepak Nitrites and recommended the draft attached at <b>Annex-VI</b> for finalization.

#### **4.2 Revision of IS 7632 Detonators – Specification**

The committee noted that the revised draft has completed the WC Stage long time back, however, in the 27th meeting of the committee, the chairperson raised a concern over the sampling of the detonators and requested members for clarification. The matter was discussed in the CHD 26: 4 Explosives Subcommittee and it was clarified by the members that the sampling given in the standard is meant for only licensing purpose by PESO. In case, of BIS license, another sampling plan is prepared and is published separately at the time of All India First license as “Product Manual” for internal quality control based on the production and level of controls. This sampling does not corresponds to certify a lot.

Based on the clarification, the committee finalized the draft attached at **Annex-VII** for printing.

#### **4.3 New Standard on Shock Tube Detonators – Specifications**

The committee noted that the draft document [Doc. No. CHD 26 (16100)] was circulated as WC-draft among the members of CHD 26 Sectional committee and CHD 26:4 Explosives Subcommittee on 10 April 2023 and was hosted on BIS website for public comments for a period of 60 days. Comments were received from the stakeholders during the circulation. Comments received on the document were discussed in the 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup> meeting of the CHD 26:4 Explosives subcommittee held on 20 March, 09 July, 04 September, and 20<sup>th</sup> September 2024. On the recommendation of the CHD 26:4 subcommittee, the committee finalized the draft attached at **Annex-VIII** for printing.

#### **4.4 New Standard on Cord Relays – Specification**

The committee noted that the draft document [Doc. No. CHD 26 (16101)] was circulated as WC-draft among the members of CHD 26 Sectional committee and CHD 26:4 Explosives Subcommittee on 10 April 2023 and was hosted on BIS website for public comments for a period of 60 days. Comments were received from the stakeholders during the circulation. Comments received on the document were discussed in the 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup> meeting of the CHD 26: 4 Explosives subcommittee held on 09 July, 04 September, and 20 September 2024. On the recommendation of the CHD 26:4 subcommittee, the committee finalized the draft attached at **Annex-IX** for printing.

### **Item 5 DRAFTS FOR WIDE CIRCULATION**

#### **5.1 Revision of IS 4668: 1985 Specification for ammonium nitrate for explosives (first revision)**

The member secretary informed the committee that the Department of Explosives, DPIIT has considered to bring a Quality Control Order (QCO) on Ammonium Nitrate. However, BIS has received a comment from a laboratory (IDMA Laboratories, Panchkula) as given below:

**Table 1 S.No. xiii) - “Requirement of Metals and compounds of metals other than alkali metals, calcium and iron, percent by mass”. The Requirement prescribes the Test Method as per A-14 of above IS. The Test Method as given under A-14.1 further prescribes “If any metallic impurity is detected, estimate quantitatively by a standard colorimetric method”.**

The comment was placed before the CHD 26: SC 1 in its 2<sup>nd</sup> meeting held on 19<sup>th</sup> Sept 2024, the subcommittee noted that currently there is no test method prescribed in the standard for Quantitative Estimation of various metals (like lead, copper zinc and manganese).

Dr. Mondhe informed the committee that these test methods may be adopted from a book called “Colorimetric Analysis by F.D.SNELL”. The subcommittee agreed to his suggestion. The subcommittee also decided to add an alternative instrumental method using ICP-OES method for determination of these metal impurities.

On the recommendation of the subcommittee, the committee decided that after incorporating the above changes, the revised draft may be circulated into wide circulation for a period of 60 days.

## **Item 6 NEW SUBJECTS**

The committee noted that the CHD 26: SC 4 Explosives Subcommittee in its 9<sup>th</sup> meeting deliberated on the proposals received from various stakeholders for formulation of new Indian Standards and recommended as follows:

### **6.1 E-XPLODERS or Initiating Devices for electronic detonators**

A proposal has been received from Coal India Limited to formulate an Indian Standard on electronic exploders (E-xploders) for electronic detonators based on the guidelines and a standard framed by DGMS.

The committee noted that there is a committee in BIS which has published an Indian standard on E-xploders for electrical detonators. Hence, the committee recommended to refer this proposal to ETD 22 Electrical Apparatus For Explosive Atmosphere Sectional Committee, for formulation of the standard.

### **6.2 Shock Tubes – Specifications**

The CHD 26: SC 4 Explosives subcommittee while discussing the comments received on draft standard on shock tube detonators, noticed that there are many tests given in the standard which are meant for shock tube only and has therefore recommended that a separate Indian standard may be formulated for shock tubes and it may be referred in the shock tube detonator standards after publication.

The committee approved the new work item and allocated the subject to CHD 26:4 Explosives subcommittee for formulation of the Working Draft.

### **6.3 Cast Boosters – Specifications**

The CHD 26:4 Explosives subcommittee in its 9<sup>th</sup> meeting, noticed that cast boosters is an important accessory used for detonating high explosives and presently there is no Indian standard is available for the product. The subcommittee recommended that an Indian standard covering Class 2 as well as Class 3 Cast Boosters may be formulated.

The committee approved the new work item and allocated the subject to CHD 26:4 Explosives subcommittee for formulation of the Working Draft.

## **Item 7 DATE AND PLACE OF NEXT MEETING**

The committee decided to have its next meeting in 2<sup>nd</sup> week of January 2025 at HEMRL, Pune in physical mode.

## **Item 8 VOTE OF THANKS**

There being no any other business, the meeting ended with a hearty vote of thanks to the chair.

**Annex I**

**List of attendees to the 29<sup>th</sup> meeting of CHD 26 Explosives and Pyrotechnics Sectional Committee**

**Chairman:** Dr. A P Dash, Director- DRDO-HEMRL, Pune

**Member Secretary:** Shri Mohit Garg, Scientist-C, BIS

<b>Sl. No.</b>	<b>Organization Represented</b>	<b>Principal/ Alternate Member</b>
1.	Sri Arumugam Fireworks Pvt. Ltd., Sivakasi	SHRI K MARIAPPAN
2.	CDET Explosives Industries Pvt. Ltd., Nagpur	SHRI RAGHAV RATHI
3.	Central Institute of Mining and Fuel Research, Dhanbad	DR C SAWMLIANA
4.	Central Mine Planning and Design Institute Ltd., Ranchi	SHRI BINAY KUMAR SINGH
5.	Centre for Fire and Explosive Environment Safety (CFEES), Delhi	SMT HEMLATA GAUTAM
6.	Coal India Ltd., Kolkata	SHRI K SUDHAKAR SHRI DEBDULAL SARKAR
7.	Consumer Guidance Society of India, Mumbai	SHRI SITARAM DIXIT
8.	Directorate General of Mines Safety, Dhanbad	SHRI Md. NIYAZI
9.	GOCL Corporation Ltd., Hyderabad	SHRI C N SAINATH SHRI S VIJAY KUMAR
10.	High Energy Materials Research Laboratory, Pune	SHRI C GURURAJA RAO
11.	IDL Explosives ltd., Hyderabad	SHRI P SIVASANKAR RAO SHRI N VENKATESH
12.	Ministry of Defence (DGQA), New Delhi	DR T K VARADARAJAN SHRI R RAGHUNATH
13.	Neyveli Lignite Corporation Ltd., Chennai	SHRI M MUTHUKUMARAN
14.	Solar Industries India Ltd., Nagpur	SHRI A K JAIN

15.	The Coronation Fireworks Factory, Sivakasi	SHRI K JEYAKUMAR
16.	The Metal Powder Co. Ltd., Madurai	SHRI P SUNDARAPANDIAN SHRI N CHANDRASEKARAN
17.	In Personal Capacity	DR ONKAR S MONDHE

## Annex II

### Composition of Explosives and Pyrotechnics Sectional Committee, CHD 26

#### Scope -

To formulate Indian Standards for terminology, methods of sampling and test, packaging, codes of practice and specifications for commercial explosives and their accessories, pyrotechnics and fireworks preparations, safety matches and t

heir raw materials.

**Chairman:** Dr. A P Dash, Director- DRDO-HEMRL, Pune

Sl. No.	Organization Represented	Principal/ Alternate Member
18.	Sri Arumugam Fireworks Pvt. Ltd., Sivakasi	SHRI K MARIAPPAN SHRI ARUN M. LALITH KUMAR (Alternate)
19.	Ayyan Fireworks Pvt. Ltd., Sivakasi	SHRI G ABIRUBEN
20.	CDET Explosives Industries Pvt. Ltd., Nagpur	SHRI RAGHAV RATHI
21.	Central Institute of Mining and Fuel Research, Dhanbad	DR C SAWMLIANA DR FIROJ ALI (Alternate)
22.	Central Mine Planning and Design Institute Ltd., Ranchi	SHRI SATYENDRA NARAYAN SHRI BINAY KUMAR SINGH (Alternate)
23.	Centre for Fire and Explosive Environment Safety (CFEES), Delhi	SMT HEMLATA GAUTAM SHRI GULSHAN KUMAR SINGLA (Alternate)
24.	Coal India Ltd., Kolkata	SHRI K SUDHAKAR SHRI DEBDULAL SARKAR (Alternate)
25.	Consumer Guidance Society of India, Mumbai	SHRI SITARAM DIXIT DR M S KAMATH (Alternate)
26.	Directorate General of Mines Safety, Dhanbad	SHRI SAIFULLAH ANSARI SHRI DEEPAK PRABHAKAR (Alternate)
27.	Fireworks Manufacturers Association (North India), Gwalior	SHRI HARISH MILWANI SHRI RAJEEV JAIN (Alternate)
28.	GOCL Corporation Ltd., Hyderabad	SHRI C N SAINATH SHRI S VIJAY KUMAR (Alternate)
29.	Gudiya Fireworks, Delhi	SHRI KSHITIJ JAIN



30.	High Energy Materials Research Laboratory, Pune	SHRI C GURURAJA RAO DR R B PAWAR ( <i>Alternate</i> )
31.	IDL Explosives Ltd., Hyderabad	SHRI P SIVASANKAR RAO SHRI N VENKATESH ( <i>Alternate</i> )
32.	Keltech Energies Ltd., Nagpur	DR ATUL P DWIVEDI
33.	Ministry of Defence (DGQA), New Delhi	DR T K VARADARAJAN SHRI R RAGHUNATH ( <i>Alternate</i> )
34.	Munitions India Limited, Pune	SHRI D VIKAS SHRI D K URKUDE ( <i>Alternate</i> )
35.	Neyveli Lignite Corporation Ltd., Chennai	SHRI M MUTHUKUMARAN
36.	Petroleum and Explosives Safety Organization (PESO), Nagpur	SHRI P KUMAR SHRI P SEENIRAJ ( <i>Alternate</i> )
37.	Shri Kaliswari Fireworks, Sivakasi	SHRI A P SELVARAJAN
38.	Solar Industries India Ltd., Nagpur	SHRI A K JAIN SHRI P P DEOTARE ( <i>Alternate</i> )
39.	Standard Fireworks, Sivakasi	SHRI M S SARAVANAN
40.	The Coronation Fireworks Factory, Sivakasi	SHRI K JEYAKUMAR
41.	The Indian Fireworks Manufacturers Association (TIFMA), Sivakasi	SHRI T KANNAN
42.	The Metal Powder Co. Ltd., Madurai	SHRI P SUNDARAPANDIAN SHRI N CHANDRASEKARAN ( <i>Alternate</i> )
43.	The Tamil Nadu Fireworks and Amorges Manufacturers Association (TANFAMA), Sivakasi	THE PRESIDENT THE SECRETARY ( <i>Alternate</i> )
44.	In Personal Capacity	DR ONKAR S MONDHE ( <i>Qtr. No. 51014, O. F. Badmal Estate, Badmal. Distt. Balangir. (Odisha) 767070</i> ).

**Pyrotechnics Panel, CHD 26: P1**

<b>Sl. No.</b>	<b>Name of the Organization</b>	<b>Representative(s)</b>
1	PESO, Nagpur	Shri K Thiagarajan ( <b>Convener</b> )
2	Petroleum and Explosives Safety Organisation(PESO), HQ, Nagpur	Shri D. Jeevrathinam
3	A.J. Research Centre, Sivakasi	Shri A. Ramamurthy/Shri P. Kanagaraj
4	Ayyan Fireworks Factory Pvt. Ltd, Sivakasi	Shri G. Abiruben/Shri V. Saravana Kumar
5	Central Pollution Control Board	Shri Abhijit Pathak
6	Consumer Guidance Society of India, Mumbai	Shri Sitaram Dixit/ Dr. M. S. Kamath
7	CSIR-NEERI	Nominations Awaited
8	Fireworks Manufacturers Association, Gwalior	Shri Harish Milwani/ Shri Rajeev Jain
9	High Energy Material Research Laboratory, Pune	Shri C Gururaja Rao
10	M/s Kala Fireworks Industries, Sivakasi	Shri S. Srinivasan/ Shri S. Ravi
11	Ministry of Defence (DGQA), New Delhi	Shri P J Chahande/ Shri S Dhillip
12	Ordnance Factory Board, Kolkata	Dr. O. S. Mondhe, IOFS/ Shri D K Urkude
13	Sri Kaliswari Fire Works Private Limited, Sivakasi	Sri A.P. Selvarajan/ Shri K.Lakshmanan
14	Sri Arumugam Fireworks, Sivakasi	Shri K. Mariappan/ Shri M. ArunLalith Kumar
15	Standard Fireworks Limited , Sivakasi	Shri Subha Singh Celladhurai/ Shri Raja Singh Celladhurai
16	The Coronation Fire Works Factory, Sivakasi	Shri K. Jayakumar/ Shri K. Jayshankar
17	The Sony Fireworks Pvt. Ltd., Sivakasi	Shri P. Ganesan/ Shri K. Vignesh Kumar
18	The Tamil Nadu Fireworks and Amorcees Manufacturers Association, Sivakasi	The President/ The Secretary
19	Solar Industries	Shri A K Jain/ Shri P P Deotare

**Packaging Materials Panel, CHD 26: P2**

<b>Sl. No.</b>	<b>Name of the Organization</b>	<b>Representative(s)</b>
i.	National Academy of Petroleum and Explosives Safety and Testing Station (NAPES & TS), Nagpur	Shri H P Sangole, Controller of Explosives
ii.	Solar Industries India Ltd., Nagpur	Shri A K Jain/Shri P P Deotare
iii.	Federation of Corrugated Box Manufacturers of India, Mumbai	Nomination Awaited
iv.	Indian Institute of Packaging, Mumbai	Dr. K K Patel
v.	CDET Explosive Industries Pvt. Ltd , Nagpur	Shri RaghavRathi/ Saumitra Rathi
vi.	M/s Explopack, Nagpur	Shri Sunil Saraogi
vii.	M/s Krishna Packaging Industries, Sivakasi	Shri R. Sukumar
viii.	Ministry of Defence (DGQA), New Delhi	Shri P J Chahande/ Shri S Dhillip
ix.	Ministry of Defence, Ordnance Factory Board, Kolkata	Shri Nishith Dwivedi/ Shri D.K.Urkude
x.	Petroleum and Explosives Safety Organisation (PESO), Nagpur	Shri P Seeniraj
xi.	Hariwansh Packaging Pvt. Ltd.	Shri Vijay Murarka/ Shri Vipul Murarka

**Raw Materials Panel, CHD 26: P3**

<b>Sl. No.</b>	<b>Name of the Organization</b>	<b>Representing Member</b>	<b>Email</b>
1.	PESO, Nagpur	Dr. R K S Chauhan, Dy. Chief Controller of Explosives, ( <i>Convener</i> )	<a href="mailto:rkschauhan@explosives.gov.in">rkschauhan@explosives.gov.in</a>
2.	Arumugam Fireworks Pvt. Ltd., Sivakasi	Shri K. Mariappan	<a href="mailto:kmariappan25@gmail.com">kmariappan25@gmail.com</a>
3.	CDET Explosives Industries Pvt. Ltd., Nagpur	Shri Raghav Rathi	<a href="mailto:raghav@cdetexplosives.com">raghav@cdetexplosives.com</a>
4.	CSIR-Central Institute of Mining Fuel & Research, Dhanbad	Dr. C Sawmliana Dr. Firoj Ali ( <i>Alternate</i> )	<a href="mailto:csawmliana@cimfr.res.in">csawmliana@cimfr.res.in</a> <a href="mailto:firojali@cimfr.nic.in">firojali@cimfr.nic.in</a>
5.	Deepak Nitrite Ltd., Vadodara	Shri Milind Dumbre	<a href="mailto:mddumbre@godeepak.com">mddumbre@godeepak.com</a>

6.	Directorate General of Quality Assurance, CQA (ME), Pune	Dr T K Varadarajan Shri R Raghunath (Alternate)	<a href="mailto:cgamear-dgqa@nic.in">cgamear-dgqa@nic.in</a> <a href="mailto:r.raghunath@gov.in">r.raghunath@gov.in</a>
7.	GOCL Corporation Ltd., Hyderabad	Shri C N Sainath Shri S Vijay Kumar (Alternate)	<a href="mailto:csainath@goclcorp.com">csainath@goclcorp.com</a> <a href="mailto:svijaykumar@goclcorp.com">svijaykumar@goclcorp.com</a>
8.	High Energy Material Research Laboratory, Pune	Shri C. Gururaja Rao	<a href="mailto:gururajao.c.hemrl@gov.in">gururajao.c.hemrl@gov.in</a>
9.	Solar Industries India Ltd., Nagpur	Shri A K Jain Shri P P Deotare (Alternate)	<a href="mailto:akjain@solargraoup.com">akjain@solargraoup.com</a> <a href="mailto:ppdeotare@solargroup.com">ppdeotare@solargroup.com</a>
10.	Sri Kaliswari Fireworks Pvt. Ltd., Sivakasi	Sri A.P. Selvarajan	<a href="mailto:kaliswarifireworks@gmail.com">kaliswarifireworks@gmail.com</a> <a href="mailto:aps.kaliswari@gmail.com">aps.kaliswari@gmail.com</a>
11.	Standards Fireworks, Sivakasi	Shri M S Saravanan	<a href="mailto:ceo@stdfireworks.com">ceo@stdfireworks.com</a>
12.	The Coronation Fireworks Factory, Sivakasi	Shri P. Kanagavel Shri K. Jeyakumar (Alternate)	<a href="mailto:coronationfireworks@yahoo.com">coronationfireworks@yahoo.com</a> <a href="mailto:coronation.office@gmail.com">coronation.office@gmail.com</a>
13.	The Metal Powder Company Ltd., Madhurai	Mr. P Sundarapandian Shri N. Chandrasekaran (Alternate)	<a href="mailto:sundar@mepco.co.in">sundar@mepco.co.in</a> <a href="mailto:nc@mepco.co.in">nc@mepco.co.in</a>
14.	The Tamil Nadu Fireworks and Amorges Manufacturers Association, Sivakasi	The President/The Secretary	<a href="mailto:tanfama@gmail.com">tanfama@gmail.com</a>
15.	In Personal Capacity	Dr. Onkar S Mondhe	<a href="mailto:drosmondhe@gmail.com">drosmondhe@gmail.com</a>

**Explosives Panel, CHD 26: P4**

<b>Sl. No.</b>	<b>Organization</b>	<b>Representing Members</b>	<b>Email</b>
i.	Petroleum and Explosives Safety Organisation (PESO), Nagpur	Dr S K Dixit ( <i>Convener</i> )	<a href="mailto:skdixit@explosives.gov.in">skdixit@explosives.gov.in</a>
ii.	Central Institute of Mining & Fuel Research (CIMFR), Dhanbad	Dr. C. Sawmliana Dr. Firoj Ali	<a href="mailto:csawmliana@cimfr.nic.in">csawmliana@cimfr.nic.in</a> <a href="mailto:firojali@cimfr.nic.in">firojali@cimfr.nic.in</a>
iii.	Central Mine Planning & Design Institute Ltd., Ranchi	Shri Satyendra Narayan Shri Binay Kumar Singh	<a href="mailto:satyendra.n@coalindia.in">satyendra.n@coalindia.in</a> <a href="mailto:bk.singh80@coalindia.in">bk.singh80@coalindia.in</a>
iv.	Coal India Ltd , Kolkata	Shri K Sudhakar Shri Debdulal Sarkar	<a href="mailto:gmprod.cil@coalindia.in">gmprod.cil@coalindia.in</a> <a href="mailto:dsarkar.cil@coalindia.in">dsarkar.cil@coalindia.in</a>
v.	National Academy of Petroleum & Explosives Safety and Testing Station (NAPES&TS), Nagpur	Dr. Anuj Kumar	<a href="mailto:anujkumar@explosives.gov.in">anujkumar@explosives.gov.in</a>
vi.	Directorate General of Mines Safety, Dhanbad	Shri Niyaz Kadere	<a href="mailto:dir.msehq@gmail.com">dir.msehq@gmail.com</a>
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