



No. DGMS(Tech.)/ S&T/Circular No. 15 Dhanbad,

dated 31/08/2026

To

All Mine Owners, Agents and Managers;

Subject: Guidelines for handling and use of e-Exploder in underground mines.

- 1.0 **BACKGROUND:** The Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade (DPIIT) had issued Gazette Notification No. S.O. 4255(E) dated 29th September 2023, regarding the phased discontinuation of electric detonators concerning the issues of public safety and National security. The government's assessment concluded the need for complete prohibition of electric detonator by the end of FY 2024-25.
- 1.1. Consequently, the mining and explosives industry is required to fully transition to electronic detonator (e-Detonator) and electronic exploder (e-Exploder) systems.
- 2.0 **INTRODUCTION:** An electronic exploder (e-Exploder) is a single device or a set of devices providing logging, continuity testing and blasting functions with authorisation to ensure safe use. These devices shall be used exclusively for communication with electronic detonators. It shall operate using a specific communication method and protocol compatible only with a corresponding type or model of electronic detonator designed using the same system architecture.
- 2.1. The standards for e-Detonator were developed and notified as IS 18462:2023 & the standards for e-Exploder were developed and notified as IS 19359:2026.
- 2.2. Subsequently, guidelines for testing standards of e-Exploder for use in underground mines were also notified through this Directorate's circular No. **DGMS (Tech.)/ S&T/Circular(Approval) No. 7**, dated 14.08.2026.
- 3.0 Now, the following guidelines shall be followed for using Permitted Electronic Detonator in the mines:
- 3.1. **Technical Specifications and Compliance Requirements for Electronic Exploders (e-Exploders):** The e-Exploder shall be uniform in design and construction, and shall strictly conform to the technical and safety standards specified under **IS 19359:2026**. No deviation from the design parameters,

structural specifications, or functional standards outlined in the said Indian Standard shall be permitted.

- 3.2. The e-Exploder shall be portable and robust enough to withstand the damp/complex mine environment and also equipped with a password-based authentication for issue of commands. It shall be capable of assessment of the healthiness of the detonator(s) which are connected in parallel.
- 3.3. The e-Exploder shall be so constructed that all parts have satisfactory strength, it shall have adequate insulation resistance and dielectric strength to withstand for a voltage of 250 volts. The enclosure case shall be robust such that it meets the requirements of drop test and impact test, splash proof and dust tightness (degree of protection IP 54) in accordance with IS/IEC 60529:2001 (as amended time to time).
- 3.4. The enclosure of the permitted type e-Exploders shall be so constructed as not to give rise to ignition hazard of gas and coal dust due to frictional spark, static charges and leakage current in the third-degree gassy mines. The circuit of the e-Exploder shall be intrinsically safe conforming to IEC/IS: 60079-11:2023, as amended from time to time.
- 3.5. The health status of the electronic detonators shall be checked by using e-Exploder individually and collectively to confirm the continuity of each detonator before firing command /abort command. The e-Exploder shall be able to display the hole no and UID of the detonators that are not healthy or do not have continuity.
- 3.6. The e-Exploders shall have suitable arrangement to terminate the output energy pulse within four milliseconds of the release of the firing command/switch.
- 3.7. The e-Exploder shall facilitate the blasting operation from a safe distance as required under the Coal Mines Regulations, 2017 and Metalliferous Mines Regulations, 1961 and shall be intrinsically safe as approved by Director General Mines Safety (DGMS).
- 3.8. **Training:** The users shall be trained by manufacturer/supplier in the field before its use in the mine, and regular maintenance of the e-Exploder shall be carried out by the trained Service Engineer who appointed & ensured by the manufacturer.
- 3.9. Persons engaged in use of the permitted electronic detonator & Electronic Exploder in the mine shall be suitably trained and duly authorized by the manager of the mine.
- 3.10. It shall also be ensured that:
 - 3.10.1. The battery shall be checked on every occasion before it is taken to underground and before its use for the purpose of firing shots, the battery indicator shall show in

fully charged condition, when it shows less than 30% of the full charging it shall not be used for firing the shots at any time.

3.10.2. The battery shall not be opened at belowground, in any case.

3.10.3. Mine manager shall keep a copy of the instruction manual dealing with the methods of handling, care, maintenance, limitations of use.

3.10.4. The extract of the conditions and special conditions, if any, recommended in the test report with regard to the safety in installation, operation and maintenance of the equipment shall be handed over to the concerned competent persons, supervisors and officials.

3.11. The e-Exploder shall be kept in a suitable box/case with caring straps in a lock & key and password protected, while using in the mines.

3.12. Electronic Exploder shall be operated by a removable key followed by authentication password for activation and other password for confirming fire command by the authorised Shotfirer/Blaster and he or she shall retain the e-Exploder key & password in his or her possession throughout the shift.

3.13. It shall be ensured that e-Detonator and e-Exploder of different makes are never connected together to prevent inadvertent initiation.

3.14. Testing of e-Exploder: shall be subjected to batch testing prior to use in mines at Government-approved / NABL-accredited laboratories (as per the DGMS e-Exploder guidelines or any modified/revised standards whichever is applicable), subject to confirmation of its accreditation granted by NABL for the relevant standard and that test house is not a part of any manufacturer's testing facility. Such testing shall cover peak open circuit voltage across output terminals of the e-Exploder, residual charge (which must be zero after 4 milliseconds), and duration of impulse current (which must be zero after 4 milliseconds of the firing command/switch). The Random samples shall be tested equivalent to 1% of the consignment or minimum one unit (whichever is higher).

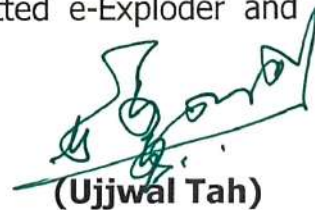
3.15. Calibration of e-Exploder: The calibration for its resistance, impulse output current, circuit voltage and residual charge shall be done at every six (06) months and also calibrated after every repair or battery change

4.0 The general conditions for use of Permitted Electronic Detonator and e-Exploder (Electronic Blasting System) shall be as follows:

4.1 The blasting/short-firing shall be conducted under the supervision of not below the rank of Overman Certificate of Competency (UR) under the Coal Mines Regulations, 2017 or under the supervision as prescribed in the solid blasting conditions with respect to the degree of gassiness of the seam/mine, whoever is senior. In case of metalliferous mines not below the rank of Foreman Certificate of Competency (UR)

under the Metalliferous Mines Regulations, 1961 or any other equivalent/corresponding certificate of competency.

- 4.2 (a) Before using the electronic detonators, each detonator shall be subjected to the test for proper functioning using approved e-Exploder of same manufacturer.
- (b) All the conditions of the solid blasting permission of the concerned seam of the mine shall be complied with during the blasting operation.
- 4.3 The details of each blasting shall be recorded in a bound paged book & signed by the competent person, who conducted the blasting, which shall be countersigned by the Assistant Manager and Manager of the mine.
- 4.4 The Standard Operating Procedure (SOP) shall be prepared for transport, storage, handling, charging, use and firing of permitted electronic detonator & e-Exploder and the same shall be implemented during handling & use of the permitted electronic detonator and e-Exploder in the mine. Further, the Standard Operating Procedure (SOP) shall be handed over to the concerned competent persons, supervisors and officials.
- 4.5 The test report on "short circuit test" of e-Exploder shall be conducted and maintained as per the guidelines mentioned in IS 19359:2026.
- 4.6 The e-exploder shall not be used after its self-life as prescribed by the manufacturer.
- 4.7 The defective and malfunction e-Exploder shall be tagged with "NOT IN WORKING ORDER" and it shall not be used for firing of shots.
- 4.8 All precautions in accordance with the relevant provisions of the Coal Mines Regulations, 2017 and Metalliferous Mines Regulations, 1961 applicable for transport, storage, handling, charging, use and firing of the explosives in underground coal/metalliferous mines shall be observed.
- 4.9 Further, all other operations using e-Exploder shall be carried out in strict compliance with the Coal Mines Regulations, 2017, Metalliferous Mines Regulations, 1961 and the provisions notified under the OSH & WC Code, 2020 which includes subsequent amendments.
- 5.0 All the Owners/Agents/Managers are therefore advised to ensure strict compliance with the above guidelines while using permitted e-Exploder and e-Detonator in underground mines.



(Ujjwal Tah)

**Director General of Mines Safety/
Chief Inspector-cum-Facilitator of Mines**