

Material Safety Data Sheet

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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/DISTRIBUTOR

1.1 Product Identifier

Product Name: Electric Detonator

Product Type: Instantaneous electric detonator for hazardous environments (TMED-Cu);

Millisecond electric detonator for hazardous environments (MMSED-Cu);

Quartersecond electric detonator (ČSED-Cu);

Halfsecond electric detonator (PSED-Cu)

Cas No. Not applicable

1.2 Relevant Identified Uses of the Substance/Mixture and Uses Advised Against

Identified uses:

Detonators for initiation of commercial/civil explosives for mining. To be used only by professionals

Uses Advised Against:

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1.3 Details of the Supplier of the Safety Data Sheet

Manufacturer

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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Clasification according Directive (EC) No. 1272/2008 (CLP)

Explosive, class 1	H201
Flammable, risk category 2	H228
Toxic if swallowed, risk category 3	H301
Harmful by inhalation, acute toxicity, risk category 4	H322
Can cause damage to organs through one-time exposure	H370
Can cause damage to organs through prolonged or repeated exposure	H373
Can damage fertility or fetus , category 1B	H360

Can cause cancer

H350

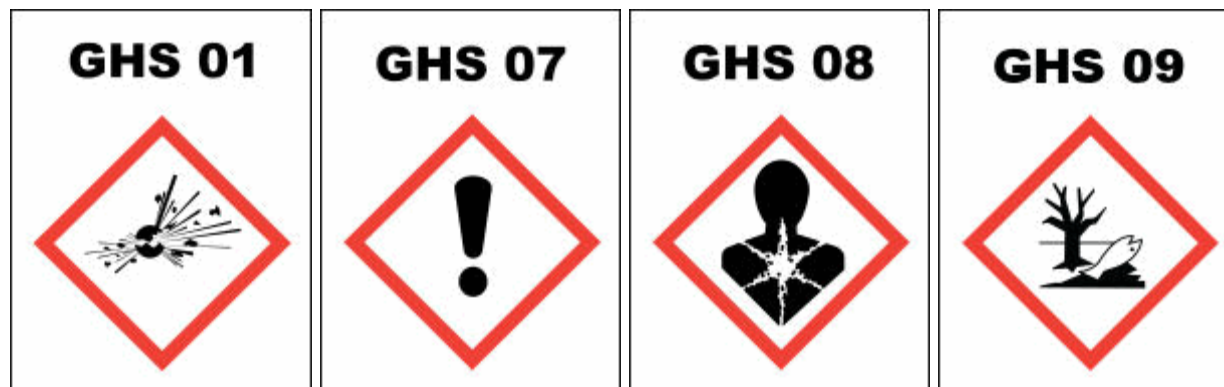
Toxic to aquatic life with long lasting effects

H411

2.2 Label elements

Label elements according to Directive (EC) No. 1272/2008 (CLP)

Hazard pictograms



Signal word: DANGER

Hazard statements: H201 - Explosive; mass explosion hazard

H228 - Flammable solid

H301 - Toxic if swallowed

H322 - Harmful if inhaled

H350 - May cause cancer

H360 - May damage fertility or the unborn child

H370 - Causes damage to organs

H373 - May cause damage to organs or state all organs affected, if known through prolonged or repeated exposure

H411- Toxic to aquatic life with long lasting effects

Precautionary Statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P221 Take any precaution to avoid mixing with combustibles.

P280 Wear protective gloves/protective clothing/eye protection/ face protection.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+P361+P353+310 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER53 or doctor/physician.

P305+P351+P338IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P371+P380+P375In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Supplemental Hazard information (EU): Not applicable.

2.3 Other hazards

The applied mixtures are not subject to the criteria for PBT or vPvB classification.

Physicochemical effects: Risk of explosion, uncontrolled explosion can cause serious injuries.

All the listed substances are contained in a closed metal cap that cannot be disassembled. Persons using the detonator may be exposed to gaseous detonation products.



3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Not applicable

3.2 Mixture

The dangerous components listed in the table are sealed inside a metal cap. The share of individual components refers to the mass of the detonator cap, not including the mass of the igniter.

Components	Identification number	Mass of component	Hazard classification
MMSED-Cu; TMED-Cu			
Pentrite	CAS: 78-11-5 EINECS: 201-084-3 Index number: 603-035-00-5	28,5 %	H-201-explosive  R3
Aglomix (Lead -azide)	CAS: 13424-46-9 EINECS: 236-542-1 Index number: 082-003-00-7	5,70 %	Unstable explosives H200 Harmful if swallowed H302 Harmful if inhaled H332 May cause damage to organs or state all organs affected, if known through prolonged or repeated exposure H373 Very toxic to aquatic life H 400 Very toxic to aquatic life with long lasting effects H410 T Repr. Cat. 1, 3 R61; Xn R62-20/22; E R3; N R50/53
Trinitrotoluene	CAS: 118-96-7 EINECS: 204-289-6	7,1-19,5 %	H-201-explosive  R3
Potassium chlorate	CAS: 118-96-7 EINECS 223-289-7	0,002 %	Solid oxidant, category 1 May cause fire or explosion; strong oxidiser H271 Harmful if swallowed H302

				Harmful if inhaled H332 Toxic to aquatic life with long lasting effects H411
	Lead (II, IV) oxide	CAS. 1314-41-6 EINECS 215-235-6	1,3-3,1%	Harmful if swallowed H302 Harmful if inhaled H332 May cause damage to organs or state all organs affected, if known through prolonged or repeated exposure H373 Very toxic to aquatic life H 400 May cause cancer H350 May damage fertility or the unborn child H360

Note: The masses of the metal and plastic parts incorporated in the electric detonator are not listed.

4. FIRST AID MEASURES

4.1 Description of first aid measures

In the detonator itself, the harmful ingredients are hermetically sealed in a metal sleeve. Under conditions of prescribed storage and handling, this product will not be exposed to harmful influences. Detonation can cause burns and serious injuries.

Inhalation: Inhalation of gases released by detonation can cause headaches and respiratory problems. Move the exposed person to fresh air and place them in a comfortable position. In case of severe complaints, it is necessary to seek medical help.

Skin contact: In the event of detonation, there is a risk of burns, general injuries, and injuries caused by debris. It is mandatory to seek medical help. Do not wash injuries with water, soap or organic solvents.

Eye contact: in case of eye contact with irritating detonation products, flush eyes with running water for several minutes. In case of prolonged irritation, seek medical help.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: headaches, irritation of the respiratory system

Skin contact: burns, injuries

Eye contact: irritations, mechanical injuries.

4.3 Indication of any immediate medical attention and special treatment needed

In case of more severe symptoms or injuries, give the doctor all the necessary information. Treatment is mostly symptomatic.

5. FIREFIGHTING MEASURES

Fire hazard: There is an extreme risk of a product caught in fire exploding.

Fire suppression is only applied if the initial fire does not involve explosives.

Such fires are electrical equipment, vegetation, tires, etc. in the vicinity. In case of fire intensification that could catch explosives, it is recommended to evacuate at least 1.5 km from the fire site.

5.1 Extinguishing media

Suitable extinguishing media: none. Water can be used to cool explosives that are not involved in a fire. Dry powder, foam and choke devices are ineffective and may cause an explosion and should not be used.

5.2 Special hazards arising from the substance or mixture

Combustion hazards: Presence of toxic gases, CO, CO₂, Nox, sulfur oxides and others.

5.3 Advice for firefighters

Instructions for firefighters: To extinguish an incipient fire in the vicinity of explosives, firefighters should apply standard procedures for the type of burning material.

Prevention measures: Selection of location and quantity of explosives, implementation of fire protection measures

General measures: prohibited smoking, presence of open fire and sparks in the area of product use.

Protective equipment: Appropriate personal protective equipment

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For persons who are not included in the intervention staff

Warn those present in the area. Use the means prescribed for work, and personal protective equipment. If there is no mechanical damage to the packaging and the product itself, pick up loose pieces by hand.

6.1.2 For emergency personnel

For emergency services: Close the dangerous area. Contact professional services for product information. In case of mechanical damage to the piece, contact professional services that will recommend a method of removal.

6.2 Environmental precautions

Do not allow the material to enter the sewage system, water supply, surface and underground water.

6.3 Methods and material for containment and cleaning up

Bulk material is treated by buying it manually, without using tools that could cause mechanical damage, cause friction or spark. Pieces are packed in cardboard packaging. Damaged pieces behave like hazardous waste, so they should be treated as such.

6.4 Reference to other sections

See section 7 and 13 for more information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Recommendations for safe handling

Working with this type of product is dangerous and requires careful and professional handling. Keep the pieces away from sources of heat, sparks and flames. Prevent mechanical impact, friction and exposure to electric current. Use only prescribed tools and devices. Use the product at the temperatures recommended by the manufacturer.

7.1.2 General hygiene:

Do not eat, drink or smoke when using this product. Use prescribed protective equipment, protective clothing and footwear.

7.2 Conditions for safe storage, including any incompatibilities

Store the product in dry, ventilated warehouses in the manufacturer's original packaging. Do not use sparking materials and open flames in the storage area. The warehouse environment must be clean and protected from fire. The warehouse is supervised by an expert, trained to identify potential hazards and to ensure that all safety measures are implemented correctly and completely. When manipulating the warehouse, the worker must wear appropriate protective equipment.

7.3 Specific end use(s)

Incompatible materials: explosives, acids, bases, organic solvents, corrosive agents.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Name	Occupational exposure limit value in the duration of 8 hours	Limit value of short-term occupational exposure
Lead oxides	0,05 mg/m ³	0,2 mg/m ³

8.2 Exposure controls

Includes basic precautions for handling explosives. Avoid inhaling gases after detonation.

Individual protection measures include clothing and footwear, adequate activities at work, use of protective glasses if necessary and dust filters after detonation.

Environmental exposure control is not required if the product is used in accordance with Article 1.2.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Aggregate state: metal cap hermetically sealed with an antistatic plug and connected to metal lead wires

Colour:	-
Smell:	-
Melting point/freezing point:	-
Boiling point:	-
Density:	-
Flammability:	-
Flash point:	-
pH:	-
Lower and upper explosion limit:	-
Vapour pressure:	-
Partition coefficient n-octanol/water:	-
Auto-ignition temperature:	PETN -190°C
Decomposition temperature:	-
Kinematic viscosity:	-

9.2 Other information

Explosive properties: danger of explosion in fire, detonation speed PETN 8400 m/s

10. STABILITY AND REACTIVITY

10.1 Reactivity

The product is stable if used in accordance with point 1 and stored as described in point 7.

10.2 Chemical stability

The product is chemically stable under the prescribed conditions of use and storage.

10.3 Possibility of hazardous reactions

The product may detonate at temperatures of use higher than prescribed. Do not expose the detonator cap made of aluminum to the action of an acidic environment.

10.4 Conditions to avoid

Exposure to impact, friction, open flame, high frequencies and static electricity.

10.5 Incompatible Materials

Strong acids and bases, corrosive agents, organic solvents.

10.6 Hazardous decomposition products

Lead oxides, CO₂, NO_x, and other gases typical of combustion.

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) no. 1272/2008

Acute toxicity :

Lead dioxide CAS 1314-41-6

LD50 >2000 mg/kg (rat)

LC50 96 hours, fish (mg/l) 0.1

EC50 48 hours daphnia (mg/l) 0.98

IC 50 72 hours algae (mg/l) 0.05

Biological monitoring involves measuring the level of lead in the blood, where the limit value is 70 µm/100ml of blood.

Health surveillance is carried out if the concentration of lead in the air is greater than 0.075 mg/m³, calculated on an average of 40 hours per week, or if the level of lead in the blood of individual workers is 40µm/100ml.

Lead and its compounds are partly excreted through the kidneys, and partly deposited inside the body, especially in the bones. After long-term exposure to high concentrations, diseases can occur which manifest as anemia, encephalopathy and paralysis of peripheral nerves.

Lead and its compounds are known for their bioaccumulative effect and can damage the fetus and the reproductive capacity of humans.

Mixtures:

Acute toxicity: the product is not classified as an acute toxicity product.

Irritation: Not corrosive or irritating to skin and eyes.

Sensitization: not known.

Repeated dose toxicity: no specific data.

Carcinogenicity: the product is not classified as a human carcinogen.

Reproductive toxicity: no specific data.

Other information: When using this product, the presence of lead salts must be taken into account. Acute poisonings are very rare.

11.2 Information about other hazards

Not applicable

12. ECOLOGICAL INFORMATION

12.1 Toxicity: No data

12.2 Persistence and degradability: No data

12.3 Bioaccumulative potential: No specific data

12.4 Mobility in soil: No specific data

12.5 Results of PBT and vPvB assessment: -

12.6 Endocrine disruption properties: -

12.7 Other adverse effects: No specific data

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Metal waste generated by the use of an electric detonator is classified and disposed of according to the regulations of the country in which it is used.

The collection, disposal and destruction of non-functional or damaged products that fall into hazardous waste is carried out in accordance with the instructions given by the manufacturer under the supervision of authorized experts.

Undamaged cardboard packaging is treated as recyclable waste. In the event that the cardboard packaging is contaminated with the contents of the capsule due to some mechanical damage, destruction is carried out by burning in an open fireplace.

14. TRANSPORT INFORMATION

14.1 UN Number: UN No. (ADR/RID/ADN)	0255	0456
UN No. (IMDG)	0255	0456
UN No. (IATA/ICAO)	0255	0456

14.2 UN Proper Shipping Name: Detonators, Electric

14.3 Transport hazard classes:	ADR/RID/ADN class	1.4B	1.4S
	ADR/RID/ADN label	1.4B	1.4S
	IMDG class	1.4B	1.4S
	IMDG label	1.4B	1.4S
	IATA/ICAO class	1.4B	1.4S
	IATA/ICAO label	1.4B	1.4S

14.4 Packing Group: Not applicable

14.5 Environmental hazards: No



15. REGULATORY INFORMATION

The acquisition and storage of electric detonators requires a proper permit in accordance with state law.

Legal norms:

Commission Regulation (EU) 2015/830 of May 28, 2015. on the amendment of Regulation (EC) No. 1907/2006 of the European Parliament and the Council on Registration, Evaluation, Authorization and Restriction (REACH)

EU Commission Regulation 2020/878 regarding safety data sheets

Regulation (EC) No. 1272/2008 of the European Parliament and the Council of December 16, 2008 on the classification, labeling and packaging of substances.

Directive on chemical agents 98/24/EC

European Agreement on the International Transport of Hazardous Substances in Road Traffic.

16. OTHER INFORMATION

The information in this safety data sheet is based on available data, current regulations on hazardous substances as well as our professional experience.

These data can be read as instructions for implementing safety measures and should not be interpreted as parameters guaranteed by the manufacturer. The user is responsible for creating the necessary conditions for safe storage and use of the detonator, so when writing this sheet, only the intended use was taken into account.