

Material Safety Data Sheet



1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name: PLAIN DETONATORS

Synonyms:

CAS-No.:

Molecular Formula:

Supplier: INDIAN EXPLOSIVES LIMITED

Supplier Address: P.O. Indian Explosives(Gomia), Distt: Bokaro(Jharkhand)

Pin: 829 11

INDIA

Telephone: (06544)261241/244

Facsimile: (06544)261247

Emergency telephone number: (06544)261241(ALL HOURS)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Recommended use: Initiators for explosive charges. Normally used with safety fuse.

Appearance: Metal tubes (approx. 42mm in length, 6.4mm in diameter), closed at one end, containing explosive charge. Odourless.

CHEMICAL ENTITY	CAS NO.	PROPORTION
Pentaerythritol tetranitrate (PETN)	78-11-5	HIGH
Lead azide	13424-46-9	MED
Lead styphnate	15245-44-0	MED
Aluminium powder	7429-90-5	VLOW

		100%

PROPORTION (% weight per weight):

VHIGH >60, HIGH 30-60, MED 10-29, LOW 1-9, VLOW <1

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

3. HAZARDS IDENTIFICATION

Hazardous according to criteria of Worksafe Australia.

Hazard Category

Xn Harmful

R-phrases(s)

R 3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.

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R20/22 Harmful by inhalation and if swallowed.
R33 Danger of cumulative effects.

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

Class: 1.1B Explosive

Poisons Schedule (Aust)/Toxic Substance (NZ): N/A - Not Applicable

4. FIRST AID MEASURES

The packaging of this material normally prevents any significant exposure. However if contact is suspected:

Ingestion: Rinse mouth with water. Give plenty of water to drink. If more than 15 minutes from a hospital, induce vomiting, preferably using Ipecac Syrup APF. Seek immediate medical assistance.

Eye contact: Irrigate with copious quantities of water for 15 minutes. In all cases of eye contamination it is a sensible precaution to seek medical advice.

Skin contact: Wash contaminated skin with plenty of soap and water. Remove contaminated clothing and wash before re-use. If irritation occurs seek medical advice.

Inhalation: Remove victim from exposure. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Notes to physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Specific hazards: Explosive materials. Avoid all ignition sources.

Fire fighting further advice: Explosive solid. Severe detonation hazard when exposed to heat. In case of small fire where the actual detonators are not involved, carefully remove the detonators to a safe distance; otherwise, evacuate area immediately and allow to burn.

6. ACCIDENTAL RELEASE MEASURES

Shut off all possible sources of ignition. Collect and seal in properly labelled drums for disposal. In the case of a transport accident notify the State Police, Controller of Explosives and IEL (Telephone 06544/261241 - 24 hour service).

7. HANDLING AND STORAGE

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Storage: Store in clean, dry magazine suitably licensed for Class 1.1B explosives. Handle with care. Do not subject material to impact, sparks, friction or any form of heating. Protect exposed ends from contact with moisture or oil.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National occupational exposure limits

No value assigned for this specific material by the National Occupational Health and Safety Commission (Worksafe Australia).

However, Exposure Standard for lead fumes (possibility of exposure when test firing in a poorly ventilated area):

	TWA		STEL	
	ppm	mg/m ³	ppm	mg/m ³
Lead fumes, as Pb	-	0.15	-	-

As published by the National Occupational Health and Safety Commission (Worksafe Australia).

TWA - the Time-Weighted Average airborne concentrations over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) - the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour work day. According to current knowledge these concentrations should neither impair the health of, nor cause undue discomfort to, nearly all workers.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. Exposure Standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Engineering measures: When test firing, ensure ventilation is adequate and that concentrations of components are controlled below quoted Exposure Standards. Natural ventilation should be adequate under normal use conditions.

Personal protection equipment: Orica Personal Protection Guide No.1, 1998: A - OVERALLS, SAFETY SHOES.

Avoid skin and eye contact and inhalation of dust to contents of metal tube. Containment of charge within metal tube prevents exposure under normal use conditions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form / Colour / Odour: Metal tubes (approx. 42mm in length, 6.4mm in diameter), closed at one end, containing explosive charge. Odourless.

Solubility: Insoluble in water.

Specific Gravity (20 C) : N Av
Rel Vapour Density (air=1): N App

Melting Point (C) : N App
Boiling Point (C) : N App

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Vapour Pressure (20 C)	: N App	Decomp. Point (C)	: N Av
Flash Point (C)	: N App	Sublimation Point	: N App
Flammability Limits (%)	: N App	pH	: N App
Autoignition Temp (C)	: N Av	Viscosity	: N App
% Volatile by volume	: Nil	Evaporation Rate	: N App
Solubility in water (g/L)	: Negligible (n-Butyl acetate=1)		

(Typical values only - consult specification sheet)

N Av = Not available N App = Not applicable

10. STABILITY AND REACTIVITY

Stability: Detonation can occur from impact, friction or excessive heating.

11. TOXICOLOGICAL INFORMATION

Main symptoms: No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms that may arise if the product is mishandled are:

Ingestion: Swallowing of the material can result in the formation of hydrazoic acid which can cause a lowering of blood pressure, violent headaches, dizziness, weakness, blurred vision, nausea, vomiting, respiratory distress, slowing of heart rate, central nervous system depression, convulsions, unconsciousness and possible death. (1)

Eye contact: Not expected to be an eye irritant. Exposure to the explosive charge inside metal tube may cause eye irritation.

Skin contact: Not expected to be a skin irritant. Contact of explosive charge inside metal tube with skin may result in irritation.

Inhalation: Not expected to cause respiratory irritation. Test firing of detonators in poorly ventilated areas can cause presence of lead fume in air. Lead fume may be irritant to mucous membranes and respiratory tract.

Long Term Effects: Repeated or prolonged exposure to lead compounds (by any route) can result in lead poisoning with possible effects such as abdominal pain, colic, constipation and/or diarrhoea, loss of appetite, weight loss, metallic taste in the mouth, nausea, vomiting, irritability, a blue line on the gums, weakness, insomnia, joint and muscle pain and weakness, headache and tremor. Absorption of lead over a period of time can produce adverse effects on the blood and central nervous system. (1)

Acute toxicity / Chronic toxicity

No LD50 data available for product. Exposure to explosive charge material unlikely. The main hazard is the possibility of exposure to lead fumes when test firing detonators in a poorly ventilated area.

For the component Lead azide (1):

Some azides have been reported as potent vasodilators, causing hypotension by direct action smooth muscle relaxation. Azide has been reported as causing neurological injury (to nerve fibres and brain) following repeated exposure.

The main hazard of lead compounds is due to their effects as cumulative poisons - significant absorption over a period of time may produce adverse effects as noted under 'Toxicological Information' due to the accumulation of lead in the body.

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Limited toxicological information is available for this material thus emphasising the need for care in handling.

12. ECOLOGICAL INFORMATION

Avoid contaminating waterways.

13. DISPOSAL CONSIDERATIONS

For small quantities: Place in a blast hole and explode during blasting. Large quantities should be returned to Indian Explosives Ltd. or be disposed of in conjunction with the relevant State Dangerous Goods Branch. Do not move detonators showing obvious signs of deterioration. Contact Indian Explosives Ltd or the relevant State Dangerous Goods Branch.

14. TRANSPORT INFORMATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

UN-No: 0029
Class: 1.1B Explosive
Hazchem code: E

Proper shipping name: DETONATORS, NON-ELECTRIC

Segregation Dangerous Goods: Explosives are not normally loaded with dangerous goods of other classes and fire risk substances, however exemptions may apply.

15. REGULATORY INFORMATION

Hazardous according to criteria of Worksafe Australia.

Hazard Category

Xn Harmful

R-phrases

R 3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R20/22 Harmful by inhalation and if swallowed.
R33 Danger of cumulative effects.

S-phrases

S13 Keep away from food, drink and animal feeding stuffs.
S20/21 When using, do not eat, drink or smoke.
S33 Take precautionary measures against static discharges.
S34 Avoid shock and friction.
S35 This material and its container must be disposed of in a safe way.

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