



Material Safety Data Sheet

1. Identification of the substance/preparation and of the

Product name **POWERGEL 801**
Supplier INDIAN EXPLOSIVES LIMITED
Address PO-Indian Explosives(Gomia),Dist-Bokaro , Pin-829112
Telephone Nos- (06544)261244/241
Facsimile (06544)261247
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2. Composition/information on ingredients

Product description -Small Diameter Non-Permitted Emulsion Explosives
Use: Blasting in quarries, metalliferous mines, tunneling, excavation, well-skinning and general blasting where energetic water-resistant explosives is required.

<u>Components</u>	<u>CAS NO</u>	<u>Proportion</u> (weight %)	<u>Risk phrases</u>
Ammonium nitrate	6484-52-2	>60 %	
Inert Materials	-	<10 %	
Cellulose, starch, oils & other oxygen negative materials	-	1-9 %	
Other inorganic oxidizers	-	<5 %	
Metal powder	-	<1 %	
Stabilisers	-	<1 %	

3. Hazard identification

Risk Phrases: Risk of explosion by shock, friction, fire or other sources of ignition

Poison Schedule: None allocated

4. First-Aid measures



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Packaging normally prevents exposure. However, if contact takes place with explosive content, do the following:

SKIN : If skin contact occurs, remove contaminated clothing and wash skin with plenty of soap and running water. If irritation occurs seek medical advice. Nitrates can be absorbed through cut, burnt or broken skin. Launder clothing before reuse.

EYE : Immediately wash with copious quantities of water for atleast 15 minutes. Eyelids should be held open. Seek immediate medical advice.

SWALLOWED : Rinse mouth with water. Give plenty of water to drink. Seek medical advice.

ADVICE TO DOCTOR

Treat symptomatically. Over exposure of nitrates may lead to methaemoglobinaemia. The smooth muscle relaxant effect of nitrates salts may lead to headache, dizziness and marked hypotension. Cyanosis is clinically detectable when approximately 15% of the haemoglobin has been converted to methaemoglobin (ie. Ferric iron)

Symptoms such as headache,dizziness,weakness and dyspnoea occur when methaemoglobin concentrations are 30% to 40%, at levels of about 60%,stupor,convulsion,coma and respiratory paralysis occur and blood is a chocolate brown colour. At higher levels death may result. Spectrophotometric analysis can determine the presence and concentration of methaemoglobin in blood.

Treatment:

1. Give 100% oxygen
2. In case of (a) ingestion: use gastric lavage,(b) contamination of skin (unburnt or burnt) : continue washing to remove salts
3. Observe blood pressure and treat hypotension if necessary
4. When methaemoglobin concentration exceeds 40% or when symptoms are present,give methylene blue 1 to 2 mg/kg body weight in a 1% solution by slow intravenous injection.If cyanosis has not resolved within one hour a second dose of 2mg/kg body weight may be given. The total dose should not exceeds 7mg/kg body weight as unwanted effects such as dyspnoea,chest pain , vomiting , diarrhoea,mental confusion and cyanosis may occur. Without treatment methaemoglobin levels of 20-30% revert to normal within 3 days
5. Bed rest is required for methaemoglobin levels in excess of 40%
6. Continue to monitor and give oxygen for atleast two hours after treatment with methylene blue.
7. Consider transfer to center where haemoperfusion can be performed to remove the nitrates from the blood if the condition of the patient is unstable

5. Fire-fighting measures



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Specific Hazards: Explosive material. Avoid all ignition sources.
Fire-fighting advice: In case of small fire, if actual explosive is not burning, carefully remove as much explosive as possible to a safe distance. However, if explosives is burning, evacuate area immediately. DO NOT fight fire. Decomposes on heating emitting irritating white fumes of nitrous oxide and ammonium nitrate mist. Brown fumes indicate the presence of toxic oxides of nitrogen.

6. Accidental release measures

Clear area of all unprotected personnel. Shut off all possible sources of ignition. In the case of a transport accident notify the Police, Department of Explosives and Indian Explosives Limited

7. Handling and storage

Handling advice: Avoid all contact with other chemicals. Avoid skin and eye contact. DO NOT subject the material to impact, friction between hard surfaces nor to any form of heating.

Storage advice: Store Explosives in a well ventilated magazines suitably licensed for Class 1.1D Explosives. Explosives should not be loaded with dangerous goods of other classes. Product deterioration: The process of deterioration of this product is a gradual crystallization of the composition, generally starting from the outside and moving towards the center. After prolonged storage a slight crusty shell begins to be apparent before the cartridges are squeezed. The product should be test fire before use.

8. Exposure controls/personal protection

No value assigned for this specific material. However, Exposure Standard(s) for constituent(s):

Oil mist, refined mineral: 8hr TWA = 5mg/m³

These Exposure Standard are guides to be used in the control of occupational health hazards. All atmospheric concentration should be kept to as low a level as is workable. These exposure



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standards should not be used as fine dividing lines between safe and dangerous concentration of chemicals. They are not a measure of relative toxicity.

TWA- The Time Weighted Average airborne concentration over an eight-working day, for a five-day working week over an entire working life.

Engineering Control Measures: Ensure ventilation is adequate and that air concentration of components are controlled below quoted exposure standards.

Personal Protective Equipment : OVERALLS, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES

Wash contaminated clothing and other protective equipment before storage or reuse. Always wash hands before smoking , eating, drinking or using the toilet. Wear overalls, chemical goggles and impervious gloves.

9. Physical and chemical properties

Physical state	: Emulsion explosives cartridged in plastic sausages with metal Clips at both the ends.
Colour	: Grey to pinkish cream mixture.
Odour	: Mild
Solubility	: Insoluble in water
Specific Gravity	: 1.07 to 1.23
Flash Point ($^{\circ}\text{C}$)	: Not applicable
Solubility in water(g/l)	: Negligible

10. Stability and reactivity

Stability: Ammonium nitrate is a powerful oxidizing agent. It is incompatible with tetranitromethane, dichloroisocyanuric acid, trichloroisocyanuric acid, any bromate, chlorate, chlorite, hypochlorite or chloroisocyanurate, any inorganic nitrate and metal powders. When heated to decomposition (unconfined) it produces nitrous oxide, white ammonium nitrate fumes and water. When mixed with strong acids, and occasionally during blasting, it produces an irritating toxic brown gas, mostly of nitrogen dioxide. When molten may decompose violently due to shock or pressure. Detonation may occur from heavy impact or excessive heating, particularly under confinement.

11. Toxicological information



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

Ingestion : Swallowing can result in nausea, vomiting, diarrhoea and abdominal pain. Other symptoms include headaches and dizziness.

Eye contact : May be an eye irritant

Skin contact : Contact with skin may result in irritation. Will have a degreasing action on the skin. Repeated or prolonged skin contact may lead to irritant contact dermatitis. Can be absorbed through cut, broken or burnt skin with resultant adverse effects.

Inhalation : Material may be irritant to the mucous membranes of the respiratory tract (airways). Breathing in vapour can result in headaches, dizziness, drowsiness and possible nausea.

Long Terms Effects:

No information available for the product

Toxicological Data:

No LD50 data available for the product. For the constituent AMMONIUM NITRATE

Oral LD50(rat): 2217mg/kg

In humans and animals methaemoglobinaemia has occurred under untreated circumstances following overexposure to nitrates. Absorption of nitrates by any route may cause dilation of blood vessels by direct smooth muscle relaxation.

12. Ecotoxicological information

Avoid contaminating waterways.

13. Disposal considerations

Small quantities of damaged or deteriorated explosives may be destroyed by inclusion in a blast hole containing good explosives.

For large quantities of damaged or deteriorated explosives notify **INDIAN EXPLOSIVES LIMITED**.

14. Transport information

Road and Rail Transport

Classified as Dangerous Goods



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UN NO : 0241
Class-primary : 1.1D Explosive
Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazchem Code : E

Marine Transport

Classified as dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea

UN NO : 0241
Class-primary : 1.1D Explosive
Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E

Air Transport

TRANSPORT PROHIBITED under the international Air Transport Association (IATA) Dangerous Goods Regulation for transport by air in passenger aircraft and cargo aircraft.

15. Regulatory information

Classification : Based on available information, not classified as hazardous according to criteria of NOHSC.

Risk Phrase(s) : R2 Risk of explosion by shock, fire or other sources of ignition

Poisons Schedule : None allocated

16. Other information

This MSDS summarized to our best knowledge at the date of issue, the chemical health and safety hazard of the materials and general guidance on how to safely handle the material in the workplace. Since IEL cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their ORICA representative or IEL at the contact details on page 1.

Our responsibility for products sold is subject to our standards terms and conditions