

Material Safety Data Sheet

Infosafe No. LTSU6 Issue Date : May 2007 ISSUED by DYNONOB

Product Name : **ELECTRIC DETONATORS**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name ELECTRIC DETONATORS
Company Name Dyno Nobel Asia Pacific Limited
Address Level 20, 111 Pacific Highway North Sydney
NSW 2060
Emergency Tel. 1800 098 836
Telephone/Fax Number Tel: +61 2 9968 9000
Fax: +61 2 9964 0170
Recommended Use Initiating explosive charges
Other Names Name Product Code
Electric Super LP
Electric Super SP
Instadet® Electric Detonator
Additional Information Note: This substance is an explosive product classified Class 1.1B Dangerous Good

2. HAZARDS IDENTIFICATION

Hazard Classification Classified as Hazardous, according to criteria of National Occupational Health & Safety Commission, Australia (NOHSC).
Classified as Dangerous Goods, according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Risk Phrase(s) R20/22 Harmful by inhalation and if swallowed.
R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R33 Danger of cumulative effects.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R61(1) May cause harm to the unborn child
R62 Possible risk of impaired fertility.

Safety Phrase(s) S22 Do not breathe dust.
S34 Avoid shock and friction.
S35 This material and its container must be disposed of in a safe way.
S36/37 Wear suitable protective clothing and gloves.
S53 Avoid exposure - obtain special instructions before use.
S61 Avoid release to the environment. Refer to special instructions/safety data sheet.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on Composition Contains barium salts and lead compounds.

Ingredients	Name	CAS	Proportion
	Pentaerythritol tetranitrate (PETN)	78-11-5	30-60 %
	Barium Chromate	10294-40-3	10-30 %
	Nitrocellulose	9004-70-0	0-9.99 %
	DDNP (Diazodinitrophenol)	4682-03-5	0-9.99 %
	Lead Dioxide	1309-60-0	0-9.99 %
	Potassium Perchlorate	7778-74-7	0-9.99 %
	Boron	7740-42-8	0-9.99 %
	Tungsten	7440-33-7	0-9.99 %

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4. FIRST AID MEASURES

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. If symptoms develop seek immediate medical attention.

Ingestion Do NOT induce vomiting. Wash out mouth with water. If symptoms develop seek medical attention.

Skin Wash affected area thoroughly with copious amounts of running water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek medical attention.

Eye If contact with the eye(s) occurs, wash with copious amounts of water holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. If symptoms persist seek medical attention.

First Aid Facilities Eye wash fountain, safety shower and normal washroom facilities.

Advice to Doctor Treat symptomatically.

5. FIRE FIGHTING MEASURES

Fire Fighting Measures DO NOT FIGHT FIRES. In the cases of a small fire, if explosive is burning, immediately isolate area and evacuate personnel to a safe distance. Evacuate up wind of the fire as hazardous decomposition products include lead fumes.

Suitable Extinguishing Media DO NOT FIGHT FIRES. Immediately isolate area and evacuate personnel to a safe distance.

Hazards from Combustion Products Under fire conditions this product may emit toxic and/or irritating fumes including carbon monoxide and carbon dioxide.

Special Protective Equipment for fire fighters Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode.

Specific Hazards Product may explode when subjected to fire, supersonic shock or high energy projectile impact especially when confined or in large quantities.

Hazchem Code E

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures Surplus or defective explosives must not be placed in any waterway, thrown away, discarded or placed with rubbish.

Destruction of explosives must be carried out by suitably qualified personnel. If necessary, the relevant statutory authorities must be notified. In all circumstances, detonation is the preferred method of disposal.

The residue from spills and the burning of explosives may be toxic to livestock and/or wildlife.

Remove all sources of heat, sparks, flame, friction or electricity. Shovel or sweep up. Recover material into suitably labelled containers.

7. HANDLING AND STORAGE

Precautions for Safe Handling Use smallest possible amounts in designated areas with adequate ventilation. Avoid sources of shock, friction, heat and ignition. Avoid contact with oxidising materials. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Label containers. Keep containers closed when not in use. Wear appropriate protective equipment to prevent inhalation, skin and eye contact. It is essential that all who come into contact with this material maintain high standards of personal hygiene ie. Washing hands prior to eating, drinking, smoking or using toilet facilities.

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Conditions for Safe Storage Store in a cool, dry, well ventilated magazine licensed for Class 1.1B Explosives. Keep storage area free of sources of shock, friction, heat, ignition and combustible materials. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Always keep in containers made of the same material as the supply container. Have appropriate fire extinguishers available in and near the storage area. Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous. Reference should be made to AS 2187.1-1998 Explosives - Storage, transport and use - Storage. Reference should also be made to all State and Federal regulations. Avoid undue force on detonator shell. Detonators should never be stored with explosives and must be stored separately in a detonator magazine or store. Keep away from heat, flame, ignition sources and avoid strong shock. Do not attempt to disassemble. Store and transport in accordance with Local, State and Federal requirements.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards No exposure limits have been established for this material by the National Occupational Health And Safety Commission (NOHSC), however the exposure limits for the constituents are;

SUBSTANCE	TWA		STEL		Notes
	ppm	mg/m ³	ppm	mg/m ³	
Tungsten:		5 mg/m ³ (NOHSC)			
Barium Chromate -		0.1 (Cr2O3) (ACGIH)			
Lead Dioxide		0.05 ((Pb) (ACGIH)			

Biological Limit Values No Biological limit available.

Engineering Controls When test firing, ensure sufficient ventilation to keep airborne concentrations below exposure limits. Mechanical exhaust ventilation may be required.

Respiratory Protection If engineering controls are not effective in controlling airborne exposure then respiratory protective equipment should be used suitable for protecting against airborne contaminants. Final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices.

Eye Protection Safety glasses with side shields, goggles or full-face shield as appropriate recommended. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications

Hand Protection Wear gloves of impervious material (PVC or neoprene gloves). Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance

Body Protection Suitable protective clothing should be worn e.g. cotton overalls buttoned at neck and wrist. When this product is handled the use of plastic aprons and rubber boots is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Metal tube closed at one end, capped at the other with electric leg wires.

Solubility in Water Insoluble.

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Product Name : **ELECTRIC DETONATORS****Flammability** Explosive material - avoid all ignition sources and sources of heat.

10. STABILITY AND REACTIVITY

Conditions to Avoid Avoid sources of heat and incompatible materials.**Incompatible Materials** Avoid contact with other explosives, pyrotechnics, solvents, acids, alkalis, reducing agents, amines, phosphorous, organic materials/compounds, finely divided combustible materials, finely divided metals and metal oxides.**Hazardous Decomposition Products** Thermal decomposition may result in the release of toxic and/or irritating fumes including ammonia and oxides of nitrogen.

11. TOXICOLOGICAL INFORMATION

Toxicology Information No toxicity data available for this product. The main hazard is the possibility of exposure to lead fumes when test firing detonators in a confined space or poorly ventilated area.**Inhalation** Harmful by inhalation. Inhalation of product vapours will cause irritation of the nose, throat and respiratory system. Avoid breathing fumes from detonation. As a result of detonation only: Nitrogen (N₂), Carbon Monoxide (CO), Water (H₂O), Nitrous Oxides (NO_x), Lead (Pb) and various oxides and complex oxides of metals.**Ingestion** Harmful if swallowed. Ingestion of this product will irritate the gastric tract causing nausea and vomiting.**Skin** May cause redness, itching and irritation.**Eye** May cause eye irritation, tearing, stinging, blurred vision, and redness.**Chronic Effects** Prolonged or repeated skin contact may cause defatting leading to dermatitis.**Reproductive Toxicity** Category 1 reproductive toxin: May cause harm to the unborn child.**Carcinogenicity** Category 3 carcinogen. Possible risk of irreversible effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.**Persistence / Degradability** No data available for this specific product.**Mobility** No data available for this specific product.**Environ. Protection** Prevent this material entering waterways, drains and sewers

13. DISPOSAL CONSIDERATIONS

Disposal Considerations Destruction of explosives must be carried out by suitably qualified and licensed personnel. If necessary, the relevant Statutory Authorities must be notified. In all circumstances, detonation is the preferred method of disposal. Detonators with shunted wires should be taped onto a cap sensitive cartridge explosive. Up to 100 detonators may be disposed of at one time. Shunted leg wires should be bundled together and the charge, primed with a good detonator, placed with the detonators pointing down into a hole which is at least 0.6 m deep. The charge is covered with paper or plastic and the hole backfilled with sand or stone-free soil. Personnel must be evacuated to a safe distance in accordance with relevant local regulations prior to initiation of the charge. After detonation the area is inspected for any unexploded detonator. Leg wires are to be disposed of in landfill in accordance with local regulations.

14. TRANSPORT INFORMATION

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Transport Information This material is classified as a Class 1 (Explosive) Dangerous Good according to The Australian Code for the Transport of Dangerous Goods by Road and Rail. Dangerous goods of Class 1 (Explosive) are incompatible in a placard load with any of the following:

- Class 2.1, Flammable Gas
- Class 2.2, Non-flammable Non-toxic Gas
- Class 2.3, Toxic Gas
- Class 3, Flammable Liquid
- Class 4.1, Flammable Solid
- Class 4.2, Spontaneously Combustible Substance
- Class 4.3, Dangerous When Wet Substance
- Class 5.1, Oxidising Agent
- Class 5.2, Organic Peroxide
- Class 6, Toxic and Infectious Substances
- Class 7, Radioactive Substance
- Class 8, Corrosive
- Class 9 - Miscellaneous Dangerous Goods
- Fire risk substances

U.N. Number 0030

Proper Shipping Name AMMUNITION, INCENDIARY

DG Class 1.1B

Hazchem Code E

Packaging Method E104

Packing Group see 'Other information' (*)

EPG Number EXP1

IERG Number 02

Other Information (*) Unless specific provision to the contrary is made, the packagings used for explosives shall comply with at least the requirements for solids or liquids (as appropriate) of Packing Group II (medium danger). Further information related to packaging, IBCS and Unit loads for explosives can be obtained from Australian Explosives Code.

15. REGULATORY INFORMATION

Poisons Schedule Not Scheduled

Hazard Category Toxic, Dangerous for the environment, Explosive

16. OTHER INFORMATION

Date of preparation or MSDS Reviewed and renamed as ELECTRIC DETONATORS: May 2007

last revision of MSDS Supercedes: July 2002

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Product Name : **ELECTRIC DETONATORS**

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DISCLAIMER: The information and suggestions above concern explosive products which should only be dealt with by persons having appropriate technical skills, training and licences. The results depend to a large degree on the conditions under which the products are stored, transported and used.

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