Safety Data Sheet

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **ELECTRIC DETONATORS (1.1B PACKAGING)**

Other name(s): Instantaneous electric detonators (1.1B); Instantaneous seismic detonators (1.1B); Zero delay electric detonators (1.1B); Short delay electric detonators (1.1B); Delay electric detonators (1.1B); Dynadet TE Instantaneous electric detonators (1.1B); Carrick R electric detonators (1.1B); Dynaseis detonators (1.1B);

Recommended Use of the Chemical and Restrictions on Use Initiators for explosive charges.

Supplier: Orica New Zealand Limited
Street Address: Brunnings Road
Carters Beach
Westport, 7892
New Zealand

Telephone Number: +64 3 788 8163
Emergency Telephone: **0 800 734 607 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

Classified as a Dangerous Good according to NZS 5433:2012 Transport of Dangerous Goods on Land.

Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.

SIGNAL WORD: DANGER

Subclasses:
Class 1 - Explosives Category B

The 'Hazardous Substances (Tracking) Regulations 2001' are applicable to this material.

Precautionary Statement(s):

Prevention:
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.
P250 Do not subject to grinding/shock/friction/fire or other sources of ignition.
P280 Wear eye protection.

Response:
P370+P380 In case of fire: Evacuate area.
P372 Explosion risk in case of fire.
P373 DO NOT fight fire when fire reaches explosives.

Storage:
P401 Store in accordance with Hazardous Substances (Class 1 to 5) Control Regulations 2001.

Disposal:
P501 In case of a substance that is in compliance with a HSNO approval other than a Part 6A (Group Standards) approval, a label must provide a description of one or more appropriate and achievable methods for the disposal of a substance in accordance with the Hazardous Substances (Disposal) Regulations 2001. This may also include any method of disposal that must be avoided.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Product Description: Metal shell (copper or aluminium) with attached copper wires. The primary and secondary explosive powders are contained within the shell.

Components	CAS Number	Proportion	Hazard Codes
Pentaerythritol tetranitrate (PETN)	78-11-5	<1%	H200
Aluminium powder (stabilised)	7429-90-5	<1%	H261 H228
Tetryl (N-Methyl- N,2,4,6-tetranitroaniline)	479-45-8	<1%	H201 H331 H311 H301 H373
Lead azide	13424-46-9	<1%	H200 H360Df H332 H302 H373 H400 H410
Lead styphnate	15245-44-0	<1%	H201 H302 H332 H360Df H373 H400 H410
Metal and plastic components and other non-hazardous components	-	>60%	-

4. FIRST AID MEASURES

Construction of the product normally prevents contact with explosive component, however, in the event of exposure: For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

Inhalation:
In the case of inhalation of blasting fumes: Remove victim from area of exposure - avoid becoming a casualty. 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.

Skin Contact:
If irritation occurs seek medical advice.

Eye Contact:
Not applicable.

Ingestion:
Get to a doctor or hospital quickly.

Indication of immediate medical attention and special treatment needed:
Treat symptomatically. Detonator assemblies are explosive - handle with care. Explosive material containing lead. Long term exposure to detonation fumes may result in lead poisoning. Shrapnel from detonation may cause burns, wounds and bruises - treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:
Do not fight fires involving explosives.

Hazchem or Emergency Action Code: E

Specific hazards arising from the substance or mixture:
Explosive material. Avoid all ignition sources. Avoid stray currents. Risk of explosion by shock, friction, fire or other sources of ignition. On burning will emit toxic fumes, including those of oxides of lead , oxides of aluminium , oxides of copper , oxides of nitrogen and oxides of carbon .

Special protective equipment and precautions for fire-fighters:
Explosive material. Severe explosive hazard when shocked or exposed to heat. Confinement of burning material may result in detonation. In case of small fire where the actual explosive is not involved, carefully remove explosive to a safe distance, otherwise evacuate area immediately and allow to burn. Do NOT fight fire. Mass explosion hazard.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:
Shut off all possible sources of ignition. Clear area of all unprotected personnel. Wear protective equipment to prevent skin and eye contact. If contamination of sewers or waterways has occurred advise local emergency services.

In the case of a transport accident notify the Police, Explosives Inspector and Orica Australia Pty Ltd (Telephone: 1800 033 111 -- 24 hour service Australia) and/or (Telephone: 0800 734 607 -- 24 hour service New Zealand).

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:
Collect and seal in properly labelled containers.

7. HANDLING AND STORAGE

Precautions for safe handling: Detonators are explosive - handle with care. Take precautionary measures against static discharges. Ensure radio transmitters are not allowed near electric detonators. Avoid all ignition sources. Do NOT subject the material to impact, friction between hard surfaces nor to any form of heating. Keep out of reach of children.

Conditions for safe storage, including any incompatibilities: Store material in a well ventilated magazine suitably licensed for Class 1.1B explosives. Do not store detonators in an explosives magazine. Protect containers from physical damage. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Workplace Exposure Standards: No value assigned for this specific material by the New Zealand Workplace Health & Safety Authority. However, Workplace Exposure Standard(s) for constituent(s):

Lead, inorganic dusts & fumes, as Pb: WES-TWA 0.1 mg/m^3, bio, 6.7B Suspected human carcinogen
Aluminium, as Al Metal dust: WES-TWA 10 mg/m^3
Tetryl: WES-TWA 1.5 mg/m^3, Sen

As published by the New Zealand Workplace Health & Safety Authority.

WES - TWA (Workplace Exposure Standard - Time Weighted Average) - The eight-hour, time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

'bio' - Biological Exposure Index.

Carcinogen Category 6.7B - Suspected human carcinogen.

`Sen' Notice - sensitiser. The substance can cause a specific immune response in some people. An affected individual may subsequently react to exposure to minute levels of that substance.

These Workplace 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. These workplace 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.

Biological Exposure Indices: Inorganic lead. Biological Exposure Index (Lead inorganic): Lead in blood = 1.5umol/L whole blood
Biological Exposure Index (Lead inorganic): Lead in urine = 1.5umol/L (150 ug/L)

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

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Orica Personal Protection Guide information (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):
The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

Orica Personal Protection Guide No. 1, 1998: B - OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES.

Wear eye protection, rubber gloves and protective footwear. Always wash hands before smoking, eating, drinking or using the toilet. Containment of charge within metal tube prevents exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Article , Solid
Colour:	Metallic
Odour:	Odourless
Solubility:	Insoluble in water.

Specific Gravity:	Not applicable
Relative Vapour Density (air=1):	Not applicable
Vapour Pressure (20 °C):	Not applicable
Flash Point (°C):	Not applicable
Flammability Limits (%):	Not applicable
Autoignition Temperature (°C):	Not applicable
Melting Point/Range (°C):	Not applicable
Decomposition Point (°C):	Not applicable
pH:	Not applicable
Viscosity:	Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Explosive.

Chemical stability: Detonation may occur from impact, friction, excessive heating or by electrical energy from an extraneous source (lightning, static electricity, stray currents, galvanic electricity or electromagnetic radiation).

Possibility of hazardous reactions: Explosion may result due to shock, friction, fire and other sources of ignition. Explosion creates the potential for shrapnel. Hazardous polymerisation will not occur.

Conditions to avoid: Avoid exposure to heat. Avoid exposure to shock, friction, fire and other sources of ignition. Avoid build up of static electricity. Avoid exposure to radio transmitters (including mobile phones). Store away from explosive products.

Incompatible materials: Incompatible with strong oxidising agents.

Hazardous decomposition products: Oxides of carbon. Oxides of nitrogen. Oxides of lead. Lead fume. Oxides of aluminium. Oxides of copper.

11. TOXICOLOGICAL INFORMATION

The construction of these articles should prevent any chemical contamination. 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: No information available.

Eye contact: May cause physical irritation.

Skin contact: Not expected to be a skin irritant. Contact with metal tube contents may result in irritation or dermatitis. One component of this material is classed as a skin sensitiser. Repeated or prolonged contact may lead to allergic contact dermatitis. Shrapnel from detonation may cause burns and wounds to the skin and eyes.

Inhalation: Not expected to cause respiratory irritation (closed system). Inhalation of dust may result in respiratory irritation. Initiation can cause the presence of lead fume in air. Lead fume may be irritant to mucous membranes and respiratory tract.

Test firing of detonators in poorly ventilated areas can cause presence of lead fume in air. Lead fumes may be irritant to mucous membranes and respiratory tract.

Acute toxicity: No LD50 data available for the product.

Chronic effects: Long term exposure to low concentrations of lead (by any route) may result in blood effects, anaemia, central and peripheral nervous system damage, gastrointestinal disturbances, renal injury, foetotoxicity, developmental deficiencies in neonates and children, and testicular damage including decreased sperm count.

Reproductive toxicity: May damage fertility or the unborn child.

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. The effects of lead poisoning may not be appartent immediately but significant absorption over a period of time may produce adverse effects as noted earlier due to accumulation of lead in the body.

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways. Contains lead compounds which can be harmful to the environment.

Aquatic toxicity: May cause long term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Disposal methods:
Refer to local government authority for disposal recommendations. Dispose of contents/container in accordance with local/regional/national/international regulations. Small quantities of damaged or deteriorated explosives may be destroyed by inclusion in a blast hole containing good explosive(s). For large quantities of damaged or deteriorated explosives notify Orica Australia Pty Ltd and/or Orica New Zealand Pty Ltd.

14. TRANSPORT INFORMATION

Road and Rail Transport
Classified as a Dangerous Good according to NZS 5433:2012 Transport of Dangerous Goods on Land.

UN No:	0030
Transport Hazard Class:	1.1 B Explosive
Proper Shipping Name or Technical Name:	DETONATORS, ELECTRIC
Hazchem or Emergency Action Code:	E

Marine Transport
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No:	0030
Transport Hazard Class:	1.1 B Explosive
Proper Shipping Name or Technical Name:	DETONATORS, ELECTRIC

IMDG EMS Fire: F-B
IMDG EMS Spill: S-X

Air Transport
TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in Passenger and Cargo Aircraft, and Cargo Aircraft Only.

15. REGULATORY INFORMATION

Classification:
Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.

Subclasses:
Class 1 - Explosives Category B

The 'Hazardous Substances (Tracking) Regulations 2001' are applicable to this material.

16. OTHER INFORMATION

This safety data sheet has been prepared by Ixom Operations Pty Ltd Toxicology & SDS Services.

Reason(s) for Issue:
5 Yearly Revised Primary SDS
Alignment to Safe Work Australia requirements
Alignment to GHS requirements
Alignment to NOHSC requirements

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Orica Limited 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 Orica Limited at the contact details on page 1.

Orica Limited's responsibility for the material as shipped is subject to the terms and conditions of sale, a copy of which is available upon request.