

# SAFETY DATA SHEET



Revision date: 23-Mar-2021

Revision Number 8

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

### Product identifier

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

**Product Code(s)** 000022014301

### Other means of identification

**Proper shipping name** DETONATORS, ELECTRIC

**UN number** 0030

**Synonyms** 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

**Recommended use** Electric detonators. Initiating explosive charges. Restricted to professional users.

**Uses advised against** No information available.

### Details of the supplier of the safety data sheet

#### **Supplier**

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

Telephone Number: +64 3 788 8163

### For further information, please contact

**Contact Point** Product Safety Department

### Emergency telephone number

**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 Hazardous Substances (Minimum Degrees of Hazard) Notice 2017 and the Hazardous Substances (Classification) Notice 2017.

### GHS Classification

**SIGNAL WORD**

Danger

**EPA New Zealand HSNO approval code or group standard** HSR100183

Subclass 1.1 Category B - Substances and articles that have a mass explosion hazard.

The 'Health and Safety at Work (Hazardous Substances) Regulations 2017, reprint as at 1 December, 2020', 'Hazardous substances that require tracking' are applicable to this material.

Division 1.1 Category B

**Label elements**



**Hazard statements**

H201 - Explosive; mass explosion hazard

**Precautionary Statements - Prevention**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep only in original packaging

Ground and bond container and receiving equipment

Do not subject to grinding/shock/friction

Wear eye/face protection

**Precautionary Statements - Response**

In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives

**Precautionary Statements - Storage**

Store in accordance with local regulations

**Precautionary Statements - Disposal**

In the 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) Notice 2017. This may also include any method of disposal that must be avoided.

**Other hazards which do not result in classification**

No information available.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Mixture**

Chemical name	CAS No.	Weight-%
Pentaerythritol tetranitrate (PETN)	78-11-5	<1%
Aluminium powder (stabilised)	7429-90-5	<1%
Tetryl (N-Methyl- N,2,4,6-tetranitroaniline)	479-45-8	<1%
Lead azide	13424-46-9	<1%
Lead styphnate	15245-44-0	<1%
Metal and plastic components and other non-hazardous components	-	>60%

**Additional information**

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

#### **4. FIRST AID MEASURES**

##### Description of first aid measures

<b>General advice</b>	For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. Take a copy of the Safety Data Sheet when going for medical treatment.
<b>Emergency telephone number</b>	Poisons Information Center, New Zealand: 0800 764 766 Poisons Information Center, Australia: 13 11 26
<b>Inhalation</b>	In case of inhalation of blasting fumes: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, (trained personnel should) give oxygen. Call a physician if symptoms occur.
<b>Eye contact</b>	Not an expected route of exposure.
<b>Skin contact</b>	Not an expected route of exposure. If skin irritation or rash occurs: Get medical advice/attention.
<b>Ingestion</b>	Get immediate medical advice/attention.
<b>Self-protection of the first aider</b>	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

##### Most important symptoms and effects, both acute and delayed

**Symptoms** None known.

##### Indication of any immediate medical attention and special treatment needed

**Note to physicians** Treat symptomatically. Detonator assemblies are explosive - handle with care. Shrapnel from detonation may cause burns, wounds and bruises. Explosive material containing lead. Long term exposure to detonation fumes may result in lead poisoning.

#### **5. FIRE FIGHTING MEASURES**

##### Suitable Extinguishing Media

**Suitable Extinguishing Media** Do not fight fires involving explosives.

**Unsuitable extinguishing media** .

##### Specific hazards arising from the chemical

**Specific hazards arising from the chemical** Explosive. May be ignited by heat, sparks or flames. Avoid stray currents. Risk of explosion by shock or heating under confinement. May explode from friction, heat or contamination.

**Hazardous combustion products** Carbon oxides. Nitrogen oxides. Metal oxides. Lead oxides. Lead fume.

##### Special protective actions for fire-fighters

**Special protective equipment for fire-fighters** In the case of a small fire, if actual explosive is not burning, carefully remove as much explosive as possible to a safe distance. However, if explosive is burning, evacuate area immediately and allow to burn. DO NOT fight fire. A major fire may involve a risk of

explosion. An adjacent detonation may also involve the risk of explosion. Mass explosion hazard.

Hazchem code E

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal precautions** Evacuate personnel to safe areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not subject to grinding/shock/friction. Use personal protective equipment as required.

**Other information** Refer to protective measures listed in Sections 7 and 8.

In the case of a transport accident notify the Police, Regulatory Authorities and Orica Australia Pty Ltd (Telephone: 1800 033 111 -- 24 hour service) and/or Orica New Zealand Ltd (Telephone: 0800 734 607 -- 24 hour service) or Orica International (Telephone: +61 3 9663 2130 -- 24 hour service Australia).

**For emergency responders** Explosive material. Remove all sources of ignition. Use personal protection recommended in Section 8.

### Environmental precautions

**Environmental precautions** Keep out of waterways.

### Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so. Keep out of drains, sewers, ditches and waterways.

**Methods for cleaning up** Handle with care. Use non-sparking tools. Ground and bond containers when transferring material. Pick up and transfer to properly labelled containers. Avoid contamination with other substances. Keep in suitable, closed containers for disposal.

### Precautions to prevent secondary hazards

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Advice on safe handling** Handle with care. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep out of reach of children. Take precautionary measures against static discharges. Do not allow radio transmitters near electric detonators. Do NOT subject the material to impact, friction between hard surfaces nor to any form of heating.

**General hygiene considerations** Wash hands before breaks and after work. When using do not eat, drink or smoke.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Store material in a well ventilated magazine suitably licensed for the explosives hazard classification. Do not store with other explosives products that have an incompatible explosives hazard classification (for example detonators must not be stored with blasting/high explosives). Store in accordance with the particular national regulations. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors

and static electricity). Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Store away from other materials. Protect from physical damage. Keep/store only in original container. Protect from moisture.

**Incompatible materials** Incompatible with combustible materials. Incompatible with oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

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

#### Workplace Exposure Standards

Lead, inorganic dusts & fumes, as Pb: WES-TWA 0.05 mg/m<sup>3</sup>, bio, 6.7B Suspected human carcinogen  
Tetryl (2,4,6-Trinitrophenyl-methylnitramine): WES-TWA 1.5 mg/m<sup>3</sup>, sen  
Aluminium, as Al Metal dust: WES-TWA 10 mg/m<sup>3</sup>

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.

Carcinogen Category 6.7B - Suspected human carcinogen.

'bio' - Biological Exposure Index.

'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.

### Appropriate engineering controls

**Engineering controls** Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas.

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 Personal Protective Equipment (PPE) (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

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.

OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES.



<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Hand protection</b>	Protective gloves.
<b>Skin and body protection</b>	Overalls. Protective shoes or boots.
<b>Respiratory protection</b>	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
<b>Environmental exposure controls</b>	No information available.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical state</b>	Solid
<b>Appearance</b>	Article.
<b>Color</b>	Metallic
<b>Odor</b>	Odourless
<b>Odor threshold</b>	No information available.

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>pH</b>	No data available	None known
<b>Melting point / freezing point</b>	No data available	None known
<b>Boiling point / boiling range</b>	No data available	None known
<b>Flash point</b>	No data available	None known
<b>Evaporation rate</b>	No data available	None known
<b>Flammability (solid, gas)</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known
<b>Upper flammability or explosive limits</b>	No data available	
<b>Lower flammability or explosive limits</b>	No data available	
<b>Vapor pressure</b>	No data available	None known
<b>Vapor density</b>	No data available	None known
<b>Relative density</b>	No data available	None known
<b>Water solubility</b>	Insoluble in water	None known
<b>Solubility(ies)</b>	No data available	None known
<b>Partition coefficient</b>	No data available	None known
<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>	No data available	None known
<b>Kinematic viscosity</b>	No data available	None known
<b>Dynamic viscosity</b>	No data available	None known
<b>Explosive properties</b>	Explosive; mass explosion hazard.	

### Other information

## 10. STABILITY AND REACTIVITY

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**Reactivity**

**Reactivity** Explosive.

**Chemical stability**

**Stability** Risk of explosion by shock, friction, fire or other sources of ignition. Heating, particularly under confinement, may cause an explosion. Detonation may occur from static electricity discharge or mechanical/heavy impact, particularly under confinement.

**Explosion data**

**Sensitivity to mechanical impact** Yes.

**Sensitivity to static discharge** Yes.

**Possibility of hazardous reactions**

**Hazardous polymerization** Hazardous polymerization does not occur.

**Possibility of hazardous reactions** Explosion may result due to shock, friction, fire or other sources of ignition. Detonation may occur from heavy impact or excessive heating. A major fire may involve a risk of explosion. An adjacent detonation may also involve the risk of explosion. Mass explosion hazard. Explosion creates the potential for shrapnel.

**Conditions to avoid**

**Conditions to avoid** Heat. Keep away from open flames, hot surfaces and sources of ignition. Static discharge (electrostatic discharge). Do not subject to grinding/shock/friction. Do not subject to shock. Avoid contact with other chemicals. Protect from moisture. Avoid exposure to radio transmitters (including mobile phones).

**Incompatible materials**

**Incompatible materials** Incompatible with combustible materials. Incompatible with oxidizing agents.

**Hazardous decomposition products**

**Hazardous decomposition products** Carbon oxides. Nitrogen oxides. Metal oxides. Lead oxides. Lead fume.

**11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**

**Information on likely routes of exposure**

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

**Inhalation** Not an expected route of exposure. Initiation can cause the presence of lead fume in air. 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. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

**Eye contact** Not expected to cause eye irritation.

**Skin contact** Not expected to cause skin irritation. Contact with contents may cause irritation or dermatitis. Product is or contains a sensitizer. Shrapnel from detonation may cause burns, wounds and bruises.

**Ingestion** Specific test data for the substance or mixture is not available.

**Symptoms** None known.

**Acute toxicity**

**Numerical measures of toxicity**

No information available.

**Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Pentaerythritol tetranitrate (PETN)	= 1660 mg/kg ( Rat )	-	-

See section 16 for terms and abbreviations

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** No information available.

**Serious eye damage/eye irritation** No information available.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** Not classified. Classification is based on mixture calculation methods based on component data.

Chemical name	New Zealand	IARC
Pentaerythritol tetranitrate (PETN) - 78-11-5		Group 2A
Lead azide - 13424-46-9	Suspected carcinogen	Group 2A
Lead styphnate - 15245-44-0		Group 3

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** Not classified.

**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.

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 apparent 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**



**Ecotoxicity** Keep out of waterways. May cause long lasting harmful effects to aquatic life.

**Terrestrial ecotoxicity** There is no data for this product.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Pentaerythritol tetranitrate (PETN)	-	LC50: =926mg/L (96h, Pimephales promelas)	-

#### Persistence and degradability

**Persistence and degradability** No information available.

#### Bioaccumulative potential

**Bioaccumulation** No information available.

#### Mobility

**Mobility in soil** No information available.

#### Other adverse effects

**Other adverse effects** Contains lead compounds which can be harmful to the environment.

### 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

##### **Waste from residues/unused products**

Dispose of product in packaging in a way that is consistent with the Hazardous Substances (Disposal) Notice 2017 and the Act. Treat the substance using a method that changes the characteristics or composition of the substance so that the substance is no longer a hazardous substance; or export the substance from New Zealand as waste.

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.

##### **Contaminated packaging**

For packages that have been in direct contact with hazardous substances, the person must ensure that the package is rendered incapable of containing any substance. It must be disposed of in a manner that is consistent with the requirements for disposal of the substance that it contained, taking into account the material the package is manufactured from. Packages may only be reused or recycled if the package has been treated to remove any residual contents of the hazardous substance (class 1, 2, 3, 4, or 5); or the contents of the residue in the package are below the threshold for the substance to be classified as hazardous (class 6, 8, or 9 substance).

### 14. TRANSPORT INFORMATION

#### ROAD AND RAIL TRANSPORT

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

**UN number** 0030  
**Proper shipping name** DETONATORS, ELECTRIC  
**Hazard class** 1.1B  
**Hazchem code** E

<b>IATA</b>	Forbidden
<b>IMDG</b>	Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.
<b>UN number</b>	0030
<b>UN proper shipping name</b>	DETONATORS, ELECTRIC
<b>Transport hazard class(es)</b>	1.1B
<b>IMDG EMS Fire</b>	F-B
<b>IMDG EMS Spill</b>	S-X

**15. REGULATORY INFORMATION**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**New Zealand**

**National regulations** See section 8 for national exposure control parameters

The 'Health and Safety at Work (Hazardous Substances) Regulations 2017, reprint as at 1 December, 2020', 'Hazardous substances that require tracking' are applicable to this material.

**EPA New Zealand HSNO approval code or group standard** HSR100183

Chemical name	New Zealand HSNO Chemical Classification
Aluminium powder (stabilised) - 7429-90-5	4.2A 4.3C 4.3B 4.1.1B 4.1.1A

**International Inventories**

<b>NZIoC</b>	Contact supplier for inventory compliance status.
<b>TSCA</b>	Contact supplier for inventory compliance status.
<b>DSL/NDSL</b>	Contact supplier for inventory compliance status.
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status.
<b>ENCS</b>	Contact supplier for inventory compliance status.
<b>IECSC</b>	Contact supplier for inventory compliance status.
<b>KECL</b>	Contact supplier for inventory compliance status.
<b>PICCS</b>	Contact supplier for inventory compliance status.
<b>AICS</b>	All the constituents of this material are listed on the Australian Inventory of Industrial Chemicals.

**Legend:**

- NZIoC** - New Zealand Inventory of Chemicals
- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances

- Australian Inventory of Industrial Chemicals

**International Regulations**

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

**16. OTHER INFORMATION**

**Prepared By** This Safety Data Sheet has been prepared by Ixom Operations Pty Ltd (Toxicology and SDS Services).

**Issuing Date:** 23-Mar-2021

**Reason(s) For Issue:** 5 Yearly Revised Primary SDS

**Revision Note:**

The symbol (\*) in the margin of this SDS indicates that this line has been revised.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
EPA (Environmental Protection Agency)  
Acute Exposure Guideline Level(s) (AEGl(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australian Industrial Chemicals Introduction Scheme (AICIS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**Disclaimer**

**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 The Supplier 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 Supplier representative or The Supplier at the contact details on page 1.

The Supplier's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

**End of Safety Data Sheet**