

# SAFETY DATA SHEET



## NONEL NON-ELECTRIC DETONATORS

Infosafe No.: LPWFO  
Issued Date: 08/04/2016  
Issued by: Dyno Nobel Asia Pacific Pty  
Limited

### 1. IDENTIFICATION

**GHS Product Identifier**

NONEL NON-ELECTRIC DETONATORS

**Company Name**

Dyno Nobel Asia Pacific Pty Limited

**Address**

282 Paringa Road  
Gibson Island  
Murarrie, QLD 4172  
Australia

**Telephone/Fax Number**

Tel: (07) 3026 3900  
Fax: (07) 3026 3999

**Emergency phone number**

1800 098 836

**Recommended use of the chemical and restrictions on use**

Detonators, non-electric

**Other Names**

Name	Product Code
NONEL® LP	
NONEL® MS CONNECTOR	
NONEL® STARTER	
NONEL® EZTL	
NONEL® MS HD	
NONEL® MS HT	
NONEL® PRIMAFIRE	
NONEL® MS	

### 2. HAZARD IDENTIFICATION

**GHS classification of the substance/mixture**

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia

Classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th

edition)

Acute Toxicity - Inhalation: Category 4

Acute Toxicity - Oral: Category 4

Carcinogenicity: Category 1

Explosives: Division 1.1

Germ Cell Mutagenicity: Category 2

Hazardous to the Aquatic Environment - Acute Hazard: Category 2

Hazardous to the Aquatic Environment - Long-Term Hazard: Category 2

Sensitization - Skin: Category 1

STOT Repeated Exposure: Category 2

Toxic to Reproduction: Category 1A

### Signal Word (s)

DANGER

### Hazard Statement (s)

H201 Explosive; mass explosion hazard.

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H332 Harmful if inhaled.

H341 Suspected of causing genetic defects .

H350 May cause cancer .

H360 May damage fertility or the unborn child .

H373 May cause damage to organs through prolonged or repeated exposure .

H411 Toxic to aquatic life with long lasting effects.

### Pictogram (s)

Exploding bomb, Exclamation mark, Health hazard, Environment



### Precautionary statement – Prevention

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash contaminated skin thoroughly after handling

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

### Precautionary statement – Response

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P314 Get medical advice/attention if you feel unwell.

P330 Rinse mouth.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P363 Wash contaminated clothing before reuse.

P370+P380 In case of fire: Evacuate area.

P372 Explosion risk in case of fire.

P373 DO NOT fight fire when fire reaches explosives.

P391 Collect spillage.

**Precautionary statement – Storage**

P401 Store in accordance with supplier  
P405 Store locked up.

**Precautionary statement – Disposal**

P501 Dispose of contents/container to an approved waste disposal plant.

**Other Information**

This is a packaged product that will not result in exposure to the explosive material under normal conditions of use. Exposure concerns are primarily with post-detonation reaction products, particularly heavy metal compounds.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Ingredients**

Name	CAS	Proportion
Pentaerythritol tetranitrate (PETN)	78-11-5	1-95 %
Cyclotetramethylenetetranitramine (HMX)	2691-41-0	1-95 %
Lead azide	13424-46-9	0-<10 %
Molybdenum	7439-98-7	0-<10 %
Silica (diatomaceous earth)	61790-53-2	0-<10 %
Tungsten	7440-33-7	0-<10 %
Antimony	7440-36-0	0-<10 %
Lead chromate	7758-97-6	0-<10 %
Potassium perchlorate	7778-74-7	0-<10 %
Selenium	7782-49-2	0-<10 %
Aluminium	7429-90-5	0-<10 %
Barium chromate	10294-40-3	0-<10 %
Lead Oxide Red	1314-41-6	0-<10 %
Barium sulphate	7727-43-7	0-<10 %
Titanium dioxide	13463-67-7	0-<10 %
Silicon	7440-21-3	0-<10 %
Lead	7439-92-1	0-<10 %

**Other Information**

Not all delay periods contain perchlorate. Those that do contain between from about 4 to a maximum of about 60 mg perchlorate per detonator.

**4. FIRST-AID MEASURES****Inhalation**

If inhaled, remove affected person from contaminated area. Apply artificial respiration if not breathing. Seek medical attention. Unlikely route of exposure unless detonator is fired.

**Ingestion**

Not considered a potential route of exposure for intact product, when used as intended.  
Unlikely route of exposure unless detonator is fired.

#### **Skin**

Not considered a potential route of exposure for intact product, when used as intended.

If the sealed unit is damaged and exposure occurs: Remove all contaminated clothing immediately. Wash affected area thoroughly with soap and water. Wash contaminated clothing before reuse or discard. Seek medical attention.

Unlikely route of exposure unless detonator is fired.

#### **Eye contact**

Not considered a potential route of exposure for intact product, when used as intended. If the sealed unit is damaged and exposure occurs: If in eyes, hold eyelids apart and flush the eyes continuously with running water. Remove contact lenses. Continue flushing for several minutes until all contaminants are washed out completely. If symptoms develop and/or persist seek medical attention.

Unlikely route of exposure unless detonator is fired.

#### **First Aid Facilities**

Eyewash and normal washroom facilities.

#### **Advice to Doctor**

Treat symptomatically.

#### **Other Information**

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

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

---

#### **Suitable Extinguishing Media**

Use only remote or fixed extinguishing systems (sprinklers).

#### **Hazards from Combustion Products**

Under fire conditions this product may emit toxic and/or irritating fumes including carbon monoxide, carbon dioxide, nitrous oxides, sulfides, chromates, lead, antimony and various complex oxides of metals.

#### **Specific Hazards Arising From The Chemical**

Explosion risk in case of fire. Do not fight fire when fire reaches explosives. Evacuate area. Extreme risk of explosion by shock, friction, fire or other sources of ignition. In case of fire: Evacuate area. DO NOT fight fire when fire reaches explosives.

#### **Hazchem Code**

E

#### **Decomposition Temperature**

Not available

#### **Precautions in connection with Fire**

Do not attempt to fight fires involving explosive materials. Evacuate all personnel to a predetermined safe, distant location. Allow fire to burn unless it can be fought remotely or with fixed extinguishing systems (sprinklers). Avoid breathing of fumes or gases generated.

## **6. ACCIDENTAL RELEASE MEASURES**

---

#### **Emergency Procedures**

Protect from all ignition sources. In case of fire evacuate all personnel to a safe distant area and allow to burn or fight fire remotely.

If no fire danger is present, and product is undamaged and/or uncontaminated, repackage product in original packaging or other clean approved container. Ensure that a complete account of product has been made and is verified.

Avoid breathing fumes or gases from detonation of explosives. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. If no fire danger is present, and product is undamaged and/or uncontaminated, repackage product in original packaging or other clean approved container. Ensure that a complete account of product has been made and is verified. If loose explosive powder is spilled, such as from a broken detonator, only properly qualified and authorised personnel should be involved with handling and clean-up activities. Spilled explosive powder is extremely sensitive to initiation and may detonate. Dispose of waste according to applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

## 7. HANDLING AND STORAGE

---

### Precautions for Safe Handling

Only properly qualified and authorised personnel should handle and use explosives. Handle with great care. Unintended detonation of explosives or explosive devices can cause serious injury or death. Use in designated areas with adequate ventilation. Avoid sources of shock, friction, heat and ignition. Avoid contact with oxidising materials. Detonation in confined or unventilated areas may result in exposure to hazardous fumes or oxygen deficiency. Wear appropriate protection. Have emergency equipment (for 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.

### Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated area away from sources of ignition, oxidising agents, strong acids, foodstuffs, and clothing. Only properly qualified and authorised personnel should handle and use explosives. Keep containers closed when not in use, securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Have appropriate fire extinguishers available in and near the storage area. Keep away from heat, sparks, open flames, ignition sources, hot surfaces. Take precautions against static electricity discharges. Use proper grounding procedures. Do not subject materials to impact, friction and strong shock. Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous. Ensure that storage conditions comply with applicable local and national regulations.

For information on the design of the storeroom, reference should be made to Australian Standard AS 2187 Explosives - Storage, transport and use.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

---

### Occupational exposure limit values

No exposure standards have been established for this material. However, the available exposure limits for ingredients are listed below:

Lead, inorganic dusts & fumes

TWA: 0.15 mg/m<sup>3</sup>

Aluminium:

TWA: 10 mg/m<sup>3</sup>

Lead chromate

TWA: 0.05 mg/m<sup>3</sup>

Silica (diatomaceous earth)

TWA: 10 mg/m<sup>3</sup>

Tungsten, insoluble compounds

TWA: 5 mg/m<sup>3</sup>

STEL: 10 mg/m<sup>3</sup>

Molybdenum, insoluble compounds

TWA: 10 mg/m<sup>3</sup>

Antimony & compounds (as Sb)

TWA: 0.5 mg/m<sup>3</sup>

Selenium compounds (as Se)

TWA: 0.1 mg/m<sup>3</sup>

Barium sulphate

TWA: 10 mg/m<sup>3</sup>

Titanium dioxide

TWA: 10 mg/m<sup>3</sup>

Silicon

TWA: 10 mg/m<sup>3</sup>

#### NOTE

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day

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 workday.

#### Biological Limit Values

Name: Lead

Determinant: Lead

Specimen: Blood

Value: 30 ug/100 ml

Sampling time: Not critical

Women of child bearing potential, whose blood Pb exceeds 10 µg/dl, are at risk of delivering a child with a blood Pb over the current Centers for Disease Control guideline of 10 µg/dl. If the blood Pb of such children remains elevated, they may be at increased risk of cognitive deficits. The blood Pb of these children should be closely monitored and appropriate steps should be taken to minimize the child's exposure to environmental lead. (CDC: Preventing Lead Poisoning in Young Children, October 1991; See BEI<sup>®</sup> and TLV<sup>®</sup> Documentation for Lead).

Source: American Conference of Industrial Hygienists (ACGIH)

#### Appropriate Engineering Controls

Use in a well ventilated area. Provide enhanced ventilation after use if in underground mines or other enclosed area.

Refer to AS 1940 - The storage and handling of flammable and combustible liquids and AS/NZS 60079.10.1:2009 Explosive atmospheres - Classification of areas - Explosive gas atmospheres, for further information concerning ventilation requirements.

#### Respiratory Protection

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements.

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, in order to make any necessary changes for individual circumstances.

#### Eye Protection

Safety glasses with side shields, chemical goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform to relevant regulations.

Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

#### Hand Protection

Wear gloves of impervious material. Final choice of appropriate gloves will vary according to individual circumstances. i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations.

Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

#### Body Protection

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Description	Properties	Description
Form	Article	Appearance	Aluminum cylindrical shell with varying length and diameter of attached coloured plastic tubing. The detonator may be enclosed in a plastic housing, and an assembly may contain two detonators.
Colour	Not available	Odour	No odour
Decomposition Temperature	Not available	Melting Point	Not applicable
Boiling Point	Not applicable	Solubility in Water	Insoluble
Specific Gravity	Not applicable	Vapour Pressure	Not applicable
Vapour Density (Air=1)	Not applicable	Evaporation Rate	Not available
Odour Threshold	Not available	Viscosity	Not available
Partition Coefficient: n-octanol/water	Not available	Flash Point	Not applicable
Flammability	Explosive. Eliminate all ignition sources.	Auto-Ignition Temperature	Not applicable
Flammable Limits - Lower	Not applicable	Flammable Limits - Upper	Not applicable

## 10. STABILITY AND REACTIVITY

### Chemical Stability

Stable under normal conditions, may explode when subjected to fire, supersonic shock or high-energy projectile impact.

### Reactivity and Stability

Reacts with incompatible materials

### Conditions to Avoid

Keep away from heat, flame, ignition sources, impact, friction, electrostatic discharge and strong shock. Do not attempt to disassemble.

### Incompatible materials

Corrosives (acids and bases or alkalis).

### Hazardous Decomposition Products

Toxic fumes may be generated as the product decomposes. Carbon monoxide, carbon dioxide, nitrous oxides, sulfides, chromates, lead, antimony and various complex oxides of metals.

### Possibility of hazardous reactions

Reacts with incompatible materials

### Hazardous Polymerization

Will not occur

## 11. TOXICOLOGICAL INFORMATION

### Toxicology Information

No toxicity data available for this product.

**Ingestion**

Ingestion unlikely due to form of product. If the sealed unit is damaged and exposure occurs: harmful if swallowed. Ingestion of this product may cause irritation to the mouth, throat, oesophagus and stomach with symptoms of nausea, abdominal discomfort, vomiting and diarrhoea. Some of the ingredients are toxic by ingestion. The Post-detonation reaction product residue is toxic by ingestion. Symptoms can include gastroenteritis with abdominal pain, nausea, vomiting and diarrhea.

**Inhalation**

Unlikely due to form of product. If the sealed unit is damaged and exposure occurs: harmful if inhaled. Inhalation of product dust can cause irritation of the nose, throat and respiratory system.

**Skin**

Unlikely due to form of product. If the sealed unit is damaged and exposure occurs: May be irritating to skin. The symptoms may include redness, itching and swelling. May cause an allergic skin reaction.

**Eye**

Unlikely due to form of product. If the sealed unit is damaged and exposure occurs: Eye contact may cause mechanical irritation. May result in mild abrasion.

**Respiratory sensitisation**

Not expected to be a respiratory sensitiser.

**Skin Sensitisation**

May cause an allergic skin reaction.

**Germ cell mutagenicity**

Suspected of causing genetic defects. Classified as suspected to induce heritable mutations.

**Carcinogenicity**

May cause cancer. Classified as a Known or presumed human carcinogen.

Lead compounds, inorganic is listed as a Group 2A: Probably carcinogenic to humans according to International Agency for Research on Cancer (IARC).

Lead is listed as a Group 2B: Possibly carcinogenic to humans according to International Agency for Research on Cancer (IARC).

Chromium (VI) compounds is listed as a Group 1: Carcinogenic to humans according to International Agency for Research on Cancer (IARC).

Selenium and selenium compounds is listed as a Group 3: Not classifiable as to carcinogenicity to humans according to International Agency for Research on Cancer (IARC).

**Reproductive Toxicity**

May damage fertility or the unborn child. Classified as a Known or presumed human reproductive or developmental toxicant.

**STOT-single exposure**

Not expected to cause toxicity to a specific target organ.

**STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

**Aspiration Hazard**

Not expected to be an aspiration hazard.

**Other Information**

Repeated inhalation or ingestion of post-detonation reaction products may lead to systemic effects such as respiratory tract irritation, ringing of the ears, dizziness, elevated blood pressure, blurred vision and tremours. Heavy metal (lead) poisoning can occur. Perchlorate can potentially inhibit iodide uptake by the thyroid and result in a decrease in thyroid hormone.

## 12. ECOLOGICAL INFORMATION

---

**Ecotoxicity**

Toxic to aquatic life with long lasting effects.

**Persistence and degradability**

Not available

**Mobility**

Not available

**Bioaccumulative Potential**

Not available



**Other Adverse Effects**

Not available

**Environmental Protection**

Do not discharge this material into waterways, drains and sewers.

---

**13. DISPOSAL CONSIDERATIONS**

---

**Disposal considerations**

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 explosives to be destroyed must be placed in direct contact with fresh priming charge in a hole and then adequately stemmed. No detonators are to be inserted into defective explosives. Personnel must be evacuated to a safe distance in accordance with relevant local regulations prior to initiation of the charge. NOTE: Detonations in loose or stony ground may be expected to cause fly rock.

---

**14. TRANSPORT INFORMATION**

---

**Transport Information**

Road and Rail:

This material is classified as Dangerous Goods Class 1 Explosives.

Class 1 Dangerous Goods are incompatible in a placard load with any of the following:

- Division 2.1: Flammable gases
- Division 2.2: Non-flammable Non-toxic Gases
- Division 2.3: Toxic Gases
- Class 3: Flammable Liquids
- Division 4.1: Flammable Solids
- Division 4.2: Spontaneously Combustible Substances
- Division 4.3: Dangerous when wet Substances
- Division 5.1: Oxidising substances
- Division 5.2: Organic Peroxides
- Class 6: Toxic or Infectious Substances
- Class 7: Radioactive materials unless specifically exempted
- Class 8: Corrosive Substances
- Class 9: Miscellaneous substances
- Fire risk substances

Marine Transport (IMO/IMDG):

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

Class/Division: 1.1B

UN No: 0360

Proper Shipping Name: DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting

EMS : F-B,S-X

Special provisions: -

IMDG Marine pollutant: Lead azide and Lead chromate

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

Class/Division: 1.1B

UN No: 0360

Proper Shipping Name: DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting

Packaging Instructions (passenger & cargo): Forbidden

Packaging Instructions (cargo only): Forbidden

**U.N. Number**

0360

**UN proper shipping name**

DETONATOR ASSEMBLIES, NON-ELECTRIC

**Transport hazard class(es)**

1.1B

**Packing Group**

see 'Other information' (\*)

**Hazchem Code**

E

**Special Precautions for User**

Not available

**EPG Number**

EXP1

**IERG Number**

02

**IMDG Marine pollutant**

Yes

**Transport in Bulk**

Not available

**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

---

**Regulatory information**

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

**Poisons Schedule**

Not Scheduled

**Hazard Category**

Explosive

## 16. OTHER INFORMATION

---

**Date of preparation or last revision of SDS**

MSDS reviewed: April 2016

Supersedes: May 2012

**References**

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice

Standard for the Uniform Scheduling of Medicines and Poisons.

Australian Code for the Transport of Dangerous Goods by Road & Rail.

Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants, Safe work Australia.

American Conference of Industrial Hygienists (ACGIH)

Globally Harmonised System of classification and labelling of chemicals.

**Contact Person/Point**

Dyno Nobel Asia Pacific Limited  
Mt Thorley Technical Centre  
Telephone: +61 2 6574 2500  
Fax: +61 2 65 74 6849

**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.

While Dyno Nobel Asia Pacific makes every effort to ensure the details contained in the data sheet are as current and accurate as possible the conditions under which its products are used are not within Dyno Nobel Asia Pacific Limited's control. Each user is responsible for being aware of the details in the data sheet and the product applications in the specific context of the intended use. Buyers and users assume all risk, responsibility and liability arising from the use of this product and the information in this data sheet. Dyno Nobel Asia Pacific Limited is not responsible for damages of any nature resulting from the use of its products or reliance upon the information. Dyno Nobel Asia Pacific Limited makes no express or implied warranties other than those implied mandatory by Commonwealth, State or Territory legislation.

## **END OF SDS**

© Copyright Chemical Safety International Pty Ltd

Copyright in the source code of the HTML, PDF, XML, XFO and any other electronic files rendered by an Infosafe system for Infosafe MSDS displayed is the intellectual property of Chemical Safety International Pty Ltd.

Copyright in the layout, presentation and appearance of each Infosafe MSDS displayed is the intellectual property of Chemical Safety International Pty Ltd.

The compilation of MSDS's displayed is the intellectual property of Chemical Safety International Pty Ltd.

Copying of any MSDS displayed is permitted for personal use only and otherwise is not permitted. In particular the MSDS's displayed cannot be copied for the purpose of sale or licence or for inclusion as part of a collection of MSDS without the express written consent of Chemical Safety International Pty Ltd.