1. IDENTIFICATION

GHS Product Identifier
PRIMALINE ® 10 DETONATING CORD

Product Code

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
Detonating cord for initiating charges.

Other Names

<table>
<thead>
<tr>
<th>Name</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primacord</td>
<td></td>
</tr>
<tr>
<td>Primaline</td>
<td></td>
</tr>
<tr>
<td>Special 18 Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 18AA Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 25 Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 25AA Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 50 Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 50AA Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 18T Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 25T Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 50T Detonating cord</td>
<td></td>
</tr>
<tr>
<td>Special 25A Detonating cord</td>
<td></td>
</tr>
</tbody>
</table>

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)
Explosives: Division 1.1

Signal Word (s)
DANGER

Hazard Statement (s)
H201 Explosive; mass explosion hazard.

Pictogram (s)
Exploding bomb

Precautionary statement – Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P230 Keep wetted with
P240 Ground/bond container and receiving equipment.
P250 Do not subject to grinding/shock/friction.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement – 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.

Precautionary statement – Storage
P401 Store

Precautionary statement – Disposal
P501 Dispose of contents/container to

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentaerythritol tetranitrate (PETN)</td>
<td>78-11-5</td>
<td>60-100 %</td>
</tr>
<tr>
<td>Materials determined not to be hazardous</td>
<td></td>
<td>0-40 %</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

Inhalation
If inhaled, remove affected person from contaminated area. Keep at rest until recovered. If symptoms develop and/or persist 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: Wash affected area thoroughly with soap and water. If symptoms develop 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.

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**5. FIRE-FIGHTING MEASURES**

**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 nitrogen oxides and carbon monoxide.

**Specific Hazards Arising From The Chemical**
Extremely explosive. Severe explosion hazard when exposed to heat, shock, friction, fire or other sources of ignition. In case of all fires involving detonating cord, evacuate the area immediately and evacuate up wind of fire. DO NOT FIGHT FIRES.

**Hazchem Code**
E

**Decomposition Temperature**
Not available

**Precautions in connection with Fire**
DO NOT FIGHT EXPLOSIVES FIRES. Try to keep fire from reaching explosives. Isolate area and evacuate personnel to a safe place.

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**6. ACCIDENTAL RELEASE MEASURES**

**Emergency Procedures**
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, repackaged 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.

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**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. 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. 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 the mixture. However, over-exposure to some chemicals may result in enhancement of pre-existing adverse medical conditions and/or allergic reactions and should be kept to the least possible levels.

The TWA Safe Work, Australia exposure standards for dust not otherwise specified is 10 mg/m³. 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 week.

**Biological Limit Values**
No biological limits allocated.

**Appropriate Engineering Controls**
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 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 such as PVC or nitrile rubber 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.

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

<table>
<thead>
<tr>
<th>Properties</th>
<th>Description</th>
<th>Properties</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Article</td>
<td>Appearance</td>
<td>Flexible cord with a white powder core protected within outer coverings of various materials, finishes and colours.</td>
</tr>
<tr>
<td>Colour</td>
<td>Various</td>
<td>Odour</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not available</td>
<td>Melting Point</td>
<td>140°C (PETN)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available</td>
<td>Solubility in Water</td>
<td>Negligible</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.76</td>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>Not applicable</td>
<td>Vapour Density (Air=1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
<td>Odour Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available</td>
<td>Partition Coefficient: n-octanol/water</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
<td>Flammability</td>
<td>Explosive material. Do not subject the material to impact, sparks or any form of heating.</td>
</tr>
<tr>
<td>Auto-Ignition Temperature</td>
<td>Not applicable</td>
<td>Flammable Limits - Lower</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammable Limits - Upper</td>
<td>Not applicable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Chemical Stability
Stable under normal conditions, may explode when subjected to shock, friction, fire or other sources of ignition.

Reactivity and Stability
Reacts with incompatible materials

Conditions to Avoid
Keep away from heat, flame, ignition sources, strong shock and electrical impulse. Do not attempt to disassemble.

Incompatible materials
Acids and alkalis, some organics such as amines and chlorides. Gritty impurities greatly increase the sensitivity to detonation.

Hazardous Decomposition Products
Detonation produces hazardous overpressures and fragments (if confined). Gases produced may contain carbon monoxide and nitrogen oxide.

Possibility of hazardous reactions
Can explode or detonate under fire conditions.

Hazardous Polymerization
Not available

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: Ingestion of this product may irritate the gastric tract causing nausea and vomiting. Ingestion of substantial amounts of PETN core may result in headaches, dizziness, nausea and vomiting. PETN is a vasodilator and produces dilation of blood vessels.
Inhalation
Not a likely route of exposure due to the packaging. Inhalation of product vapours or powders may 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.

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

Respiratory sensitisation
Not expected to be a respiratory sensitisier.

Skin Sensitisation
Not expected to be a skin sensitisier.

Germ cell mutagenicity
Not considered to be a mutagenic hazard.

Carcinogenicity
Not considered to be a carcinogenic hazard.

Reproductive Toxicity
Not considered to be toxic to reproduction.

STOT-single exposure
Not expected to cause toxicity to a specific target organ.

STOT-repeated exposure
Not expected to cause toxicity to a specific target organ.

Aspiration Hazard
Not expected to be an aspiration hazard.

Other Information
PETN has been shown to be a vasodilator and overexposure can result in headaches, weakness and fall in blood pressure. Repeated or prolonged exposure may cause skin sensitisation.

12. ECOLOGICAL INFORMATION

Ecotoxicity
No ecological data available for this material.

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 residue from spills and the burning of explosives may be toxic to livestock and/or wildlife.
DETONATION:
The explosives to be destroyed must be placed in direct contact with fresh priming charge in a hole which is at least 0.6m deep 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.

BURNING:
Burning may result in the detonation of explosives. Burning explosives produces toxic fumes eg. oxides of nitrogen and carbon. Make a sawdust bed or trail adequate for the quantity of explosives to be burned approximately 400mm wide and 40mm deep, upon which the explosive will be laid. If sawdust is not available, newspaper may be used. Normal precautions should be taken against the spread of fire.
Individual trails should not be closer together than 600mm and should contain not more than 12kg of explosive.
Trails should be side-by-side, not in a line, and not more than four should be set up at one time.
Remove any explosive that is not to be burnt to a distance of at least 300m.
Sufficient diesel oil (never petrol or other highly flammable liquid) should be used to thoroughly wet the sawdust (or paper). At least 4L per trail is recommended.
Light the trail from a long rolled paper 'wick' which should be placed downwind and in contact with the 1m of trail which is not covered with explosive.
The wind should blow so that the flame from the wick (and later from the burning explosives) will blow away from the unburned explosives as detonation is more likely to occur if the explosives are preheated by the flame.
If plastic igniter cord (slow) is available, its use for lighting is recommended instead of paper. One end should be coiled into or under the paper and the other end lit from a minimum distance of 7m from the trail. Retire to at least 300m or to a safe place.
Do not return to the site for at least 30 min after the burning has apparently finished.
If the fire goes out do not approach for at least 15 minutes after all traces of fire has gone. Do not add more diesel oil unless certain that the flame is completely extinguished.

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.
Division: 1.1D
EmS: F-B, S-X
UN-No: 0065
Proper Shipping Name: CORD, DETONATING, flexible
Special Provisions: -

Air Transport (ICAO/IATA):
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.
UN-No: 0065
Division: 1.1D
Proper Shipping Name: CORD, DETONATING, flexible
Packaging Instructions (cargo): Forbidden
Packaging Instructions (passenger): Forbidden
Special Provisions: A2

U.N. Number
0065

UN proper shipping name
CORD, DETONATING

Transport hazard class(es)
1.1D

Packing Group
see "Other information" (*)

Hazchem Code
E

Special Precautions for User
Not available

IERG Number
02

IMDG Marine pollutant
No

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

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.

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