

SAFETY DATA SHEET



TROJAN™ 150

Infosafe No.: LPWFA
Issued Date: 11/04/2016
Issued by: Dyno Nobel Asia Pacific Pty
Limited

1. IDENTIFICATION

GHS Product Identifier

TROJAN™ 150

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

Initiating explosive charges.

Other Names

Name	Product Code
Spartan Cast Booster 150	
Spartan Cast Booster 400	
NB Universal Cast Booster 400	
Ringprime Cast Booster 150	
Doubledet	

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 - Dermal: Category 3

Acute Toxicity - Inhalation: Category 3

Acute Toxicity - Oral: Category 3
Explosives: Division 1.1
Hazardous to the Aquatic Environment - Long-Term Hazard: Category 2
STOT Repeated Exposure: Category 2

Signal Word (s)

DANGER

Hazard Statement (s)

H201 Explosive; mass explosion hazard.
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H331 Toxic if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure .
H411 Toxic to aquatic life with long lasting effects.

Pictogram (s)

Exploding bomb,Skull and crossbones,Health hazard,Environment



Precautionary statement – 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.
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.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement – Response

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
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.
P311 Call a POISON CENTER or doctor/physician.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P314 Get medical advice/attention if you feel unwell.
P330 Rinse mouth.
P361 Remove/Take off immediately all contaminated clothing.
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
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Precautionary statement – Disposal

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Name	CAS	Proportion
Pentaeruthritol tetranitrate (PETN)	78-11-5	30-70 %
Trinitrotoluene	118-96-7	30-70 %
Sodium Nitrate	7631-99-4	0-10 %
Inert fillers	-	0-10 %

4. FIRST-AID MEASURES

Inhalation

If inner coating is inhaled, Avoid becoming a casualty - to protect rescuer, use air-viva, oxy-viva or one-way mask. Remove affected person from contaminated area - Apply artificial respiration if not breathing. Do not give direct mouth to mouth resuscitation. Resuscitate in a well ventilated area. Seek IMMEDIATE medical attention.

Unlikely route of exposure unless detonator is fired.

Ingestion

Unlikely to occur due to the physical state of the product. However, if ingested, Do not induce vomiting. Immediately wash out mouth with water (never give anything by mouth if affected person is semi-conscious or unconscious). Seek immediate medical attention.

Unlikely route of exposure unless detonator is fired.

Skin

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

Remove all contaminated clothing immediately. Wash gently and thoroughly with water and non-abrasive soap for 15 minutes. Ensure contaminated clothing is washed before re-use or discard. Seek immediate 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 in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing for several minutes until all contaminants are washed out completely. If symptoms develop and 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

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 ammonia, oxides of nitrogen, carbon monoxide and carbon dioxide.

Specific Hazards Arising From The Chemical

Will explode if suitably primed. Avoid extreme conditions of heat or shock.

DO NOT FIGHT ANY FIRES. In the cases of a fire, if explosive is burning, immediately isolate area and evacuate personnel to a safe

distance. Evacuate up wind as toxic fumes may be generated as the product decomposes.

Hazchem Code

E

Decomposition Temperature

Not available

Precautions in connection with Fire

DO NOT fight fire when fire reaches explosives. In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use only remote or fixed extinguishing systems (sprinklers).

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures

Isolate and install signals for the area of spill. Contain the source and spread of the spill and ensure that the material does not enter any waterways or drains.

Collect with anti-spark tools and place in clean, approved containers which are then labelled and sealed.

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

Wear appropriate personal protective equipment and clothing to minimise exposure. Clear area of all unprotected personnel. Shut off all ignition sources. 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.

Remove all sources of ignition. Do not allow contact with skin and eyes. Do not breathe dust. It is essential to wear self-contained breathing apparatus (S.C.B.A) and full personal protective equipment and clothing to prevent exposure. Avoid exposure to spillage by sweeping up material avoiding dust generation - dampen spilled material with water if suitable to avoid airborne dust.

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. Detonation in confined or unventilated areas may result in exposure to hazardous fumes or oxygen deficiency. 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.

Inner coating: Toxic solid. Avoid exposure. Exposure without protection must be prevented. Wear appropriate personal protective equipment and clothing to prevent exposure. Use in designated areas with local exhaust ventilation. DO NOT store or use in confined spaces. Build up of dust/solid in the atmosphere must be prevented. Avoid breathing in dust/solid. Do not use near ignition sources. Do not empty into drains. Maintain high standards of personal hygiene i.e. 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.

Inner coating: this material is Toxic and must be stored, handled and maintained according to the appropriate regulations. Limit quantity in storage. Restrict access to storage area. Post appropriate warning signs. Consider leak detection and alarm systems, as required. Structural materials and lighting and ventilation systems in storage area should be corrosion resistant. Store in a cool, dry, well-ventilated area away from sources of ignition, oxidizing agents, strong mineral acids, bases metal and/or water. 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. Take precautions against static electricity discharges. Use proper grounding procedures. 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/NZS 4452 The storage and handling of toxic substances.

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/m³

Aluminium:
TWA: 10 mg/m³

Lead chromate
TWA: 0.05 mg/m³

Silica (diatomaceous earth)
TWA: 10 mg/m³

Tungsten, insoluble compounds
TWA: 5 mg/m³
STEL: 10 mg/m³

Molybdenum, insoluble compounds
TWA: 10 mg/m³

Antimony & compounds (as Sb)
TWA: 0.5 mg/m³

Selenium compounds (as Se)
TWA: 0.1 mg/m³

Barium sulphate
TWA: 10 mg/m³

Titanium dioxide
TWA: 10 mg/m³

Silicon
TWA: 10 mg/m³

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

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 neoprene gloves. 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	Roughly cylindrical shapes. Cardboard or plastic outer sleeve containing white to pale yellow explosive charge.
Colour	White to pale yellow	Odour	Not available
Decomposition Temperature	Not available	Melting Point	Not available
Boiling Point	Not applicable	Solubility in Water	Insoluble in water
Specific Gravity	1.62	pH	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 solid - 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. Detonation can occur from impact, friction and excessive heating.

Reactivity and Stability

Not available

Conditions to Avoid

Avoid sources of heat and shock to the product.

Incompatible materials

Not available

Hazardous Decomposition Products

Thermal decomposition may result in the release of toxic and/or irritating fumes and gases.

Possibility of hazardous reactions

Not available

Hazardous Polymerization

Not available

11. TOXICOLOGICAL INFORMATION

Toxicology Information

NO data available for the actual product.

For TNT, dermatitis, cyanosis, gastritis, liver damage and aplastic anaemia are commonly quoted effects of exposure. Other occasional effects include blood destruction, leucocytosis or leucopenia, central nervous system effects, peripheral neuritis and muscular pain, cardiac muscular and menstrual irregularities and urinary and renal Cataracts in the eyes have been reported following chronic exposure.

PETN is a vasodilatory agent therefore can cause lowering of blood pressure. Exposure to high doses of PETN may result in headaches, weakness and dizziness.

Ingestion

Ingestion unlikely due to form of product. However if ingested will cause irritation to the mouth, esophagus and stomach. Symptoms may include nausea, headaches, dizziness, vomiting, abdominal pains, chemical burns to the gastro-intestinal tract with resultant bleeding, and possible shock. Damage to the liver, kidney and renal failure may also occur.

Inner coating: Toxic 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.

Inhalation

Not a likely route of exposure. However if inhaled, inhalation of high concentrations of this product will result in headache, dizziness, mental depression, nausea, vomiting, narcosis, anaesthesia and coma.

Inner coating: toxic if inhaled. Inhalation may cause headaches, impairment of judgement and in extreme cases can lead to unconsciousness or death.

Skin

Not a likely route of exposure. However if contacted, may cause blisters which appear after several hours with little or no pain. Skin resembles second degree burns. May cause toxic and allergic dermatitis.

Inner coating: toxic in contact with skin. Product can be absorbed through skin with resultant toxic systemic effects.

Eye

Not a likely route of exposure.

Inner coating: eye contact may cause mechanical irritation. May result in mild abrasion.

Respiratory sensitisation

Not expected to be a respiratory sensitiser.

Skin Sensitisation

Not expected to be a skin sensitiser.

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

May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Not expected to be an aspiration hazard.

Other Information

Prolonged or repeated skin contact may cause defatting leading to dermatitis.

Evidence from human exposure data and animal tests is available to indicate that repeated or prolonged exposure to the TNT contained in this material (by any route) could result in liver, blood, bone marrow, eye kidney and nervous system disorders. The ingestion of alcohol may increase susceptibility of the effects of TNT.

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 disposal. Do not burn, ask Dyno Nobel for advice and assistance.

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 0.6 m 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.

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.

Marine Pollutant: Trinitrotoluene

Division: 1.1D

EmS: F-B, S-X

UN-No: 0042

Proper Shipping Name: BOOSTERS

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: 0042

Division: 1.1D

Proper Shipping Name: BOOSTERS

Packaging Instructions (cargo): Forbidden

Packaging Instructions (passenger): Forbidden

U.N. Number

0042

UN proper shipping name

BOOSTERS

Transport hazard class(es)

1.1D

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.

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END OF SDS

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