Material Safety Data Sheet

Infosafe No. LTSW0	Issue Date : June 2007	ISSUED by DYNONOB

Product Name : **TITAN® 4000 GASSED SERIES**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	TITAN® 4000 GASSED SERIES
Company Name	Dyno Nobel Asia Pacific Limited
Address	Level 20, 111 Pacific Highway North Sydney NSW 2060
Emergency Tel.	1800 098 836
Telephone/Fax Number	Tel: +61 2 9968 9000 Fax: +61 2 9964 0170
Recommended Use	Bulk blasting agent with at least 50% emulsion in its composition. Gassing of the product achieves explosive sensitisation.

2. HAZARDS IDENTIFICATION

Hazard Classification	DANGEROUS GOODS. NON-HAZARDOUS SUBSTANCE. Dangerous goods classification according to the Australian Dangerous Goods Code. Hazard classification according to the criteria of NOHSC.
Risk Phrase(s)	R2 Risk of explosion by shock, friction, fire or other sources of ignition.
Safety Phrase(s)	S34 Avoid shock and friction. S35 This material and its container must be disposed of in a safe way.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	**Name**	**CAS**	**Proportion**
	Ammonium Nitrate	6484-52-2	70-100 %
	Oils and other oxygen negative materials		0-10 %
	Other ingredients determined not to be hazardous.		Balance to 100%

4. FIRST AID MEASURES

Inhalation	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. If symptoms develop seek medical attention.
Ingestion	If swallowed, do NOT induce vomiting. Wash out mouth with water. If symptoms develop seek medical attention.
Skin	Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek medical attention.
Eye	If contact with the eye(s) occurs, wash with copious amounts of water holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. If symptoms persist seek medical attention.
First Aid Facilities	Normal washroom facilities.
Advice to Doctor	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	For small fires use carbon dioxide, dry chemical or foam.
Hazards from Combustion Products	Under fire conditions this product may emit toxic and/or irritating fumes.

Specific Hazards	Not known to be a fire hazard under normal conditions of use. Will explode if suitably primed. Avoid extreme conditions of heat or shock. If the product ignites then mass cooling by heavy dousing with water should effectively extinguish small fires. DO NOT FIGHT LARGE FIRES. If a fire becomes established immediately isolate area and evacuate personnel to a safe distance. Toxic fumes may be generated as the product decomposes.
Hazchem Code	E
Precautions in connection with Fire	Fire-fighters should wear full protective clothing and self contained breathing apparatus (SCBA) operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Evacuate area of all non-essential personnel. Ensure no sources of ignition or heat. Ensure good ventilation. Contain the source and spread of the spill and ensure that the material does not enter any waterways or drains. Collect as much of the material as possible 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.

7. HANDLING AND STORAGE

Precautions for Safe Handling	DO NOT subject the product to impact, friction or heating. Do not drill into the explosive. Have appropriate fire extinguishers available in and near the storage area. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Wear appropriate protective equipment to prevent inhalation, skin and eye contact. Ensure a high level of personal hygiene is maintained when using this product. That is; always wash hands before eating, drinking, smoking or using the toilet.
Conditions for Safe Storage	Store in a cool, dry, well-ventilated area, out of direct sunlight and moisture. Store in labelled containers. Keep containers tightly closed. Store away from water and incompatible materials. Have appropriate fire extinguishers available in and near the storage area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	No exposure standards established for product. During preparation of this material, ammonium nitrate Dust - nuisance dust (TWA) 10 mg/m^3 Mineral oil mist - (TWA) 5 mg/m^3
Biological Limit Values	No Biological limit available.

Other Exposure Information	As a result of detonation of this product, oxides of nitrogen fumes may be liberated. Nitrogen oxides are skin, eye and respiratory system irritants. Systematic toxicity resulting from oxidation of lung tissue and bronchopneumonia. Acute exposure can lead to death from asphyxia or pulmonary oedema. In animals, nitrogen oxide caused methemoglobinemia, was not carcinogenic, but caused embryotoxicity and reproductive effects. Carbon dioxide is a colourless, odourless gas. It is a simple asphyxiant, attacking the lungs, skin and cardiovascular system. Concentrations of 5% may produce shortness of breath and headache and concentrations of 10% can produce unconsciousness and death from oxygen deficiency. Adequate ventilation will provide sufficient protection from any carbon dioxide accumulations. Carbon monoxide is a colourless, odourless, tasteless gas which, when inhaled, combines with haemoglobin to form carboxyhemoglobin which interferes with the oxygen-carrying capacity of blood. Resulting symptoms include headache, dizziness, drowsiness, nausea, vomiting, collapse, coma and death. Carbon monoxide attacks the central nervous system, lungs, blood and cardiovascular system. Do not enter any area where accumulations of these gases are suspected without appropriate breathing apparatus.
Engineering Controls	Use with good general ventilation. If mists or vapours are produced local exhaust ventilation should be used.
Respiratory Protection	If engineering controls are not effective in controlling airborne exposure then respiratory protective equipment should be used suitable for protecting against airborne contaminants. Type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. 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.
Eye Protection	Safety glasses with side shields, goggles or full-face shield as appropriate recommended. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. 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. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.
Body Protection	Suitable work wear should be worn to protect personal clothing, eg cotton overalls buttoned at neck and wrist. When large quantities are handled the use of plastic aprons and rubber boots is recommended. Industrial clothing should conform to the specifications detailed in AS/NZS 2919: Industrial clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Translucent emulsion with small hard spheres and small gas bubbles, oily to touch.
Odour	Not available
Melting Point	Not applicable
Boiling Point	Not applicable
Solubility in Water	Insoluble but dispersible with water jets
Specific Gravity	1.05 - 1.25
pH Value	Not applicable

Vapour Pressure	Not applicable
Vapour Density (Air=1)	Not applicable
Flash Point	Not applicable
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.
Conditions to Avoid	Shock, friction, heat, direct sunlight, open flames or other sources of ignition and detonation.
Incompatible Materials	Not available
Hazardous Decomposition Products	Thermal decomposition may result in the release of toxic and/or irritating fumes.
Hazardous Polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation	Inhalation of product vapours may cause irritation of the nose, throat and respiratory system.
Ingestion	Ingestion of this product may irritate the gastric tract causing nausea and vomiting. Ingestion of large quantities may depress the central nervous system.
Skin	May cause irritation in contact with skin. Symptoms may include redness and itchiness. Repeated or prolonged skin contact may lead to dermatitis.
Eye	May cause irritation to eyes. Symptoms may include redness, tearing, stinging and blurred vision.
Chronic Effects	Repeated or prolonged exposure may cause irritant contact dermatitis.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Not available
Persistence / Degradability	Not available
Mobility	Not available
Environ. Protection	Avoid contaminating waterways.

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.
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.

BURNING:
Burning may result in the detonation of explosives. Burning explosives produces toxic fumes e.g. 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 the sawdust 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	This material is classified as a Class 1 (Explosive) Dangerous Good according to The Australian Code for the Transport of Dangerous Goods by Road and Rail. Dangerous goods of Class 1 (Explosive) are incompatible in a placard load with any of the following: - Class 2.1, Flammable Gas - Class 2.2, Non-flammable Non-toxic Gas - Class 2.3, Toxic Gas - Class 3, Flammable Liquid - Class 4.1, Flammable Solid - Class 4.2, Spontaneously Combustible Substance - Class 4.3, Dangerous When Wet Substance - Class 5.1, Oxidising Agent - Class 5.2, Organic Peroxide - Class 6, Toxic and Infectious Substances - Class 7, Radioactive Substance - Class 8, Corrosive - Class 9 - Miscellaneous Dangerous Goods - Fire risk substances
U.N. Number	0241
Proper Shipping Name	EXPLOSIVE, BLASTING, TYPE E
DG Class	1.1D
Hazchem Code	E
Packaging Method	E8
Packing Group	see 'Other information' (*)
EPG Number	EXP1
IERG Number	02
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

Poisons Schedule	Not Scheduled
Hazard Category	Explosive

16. OTHER INFORMATION

Date of preparation or last revision of MSDS	MSDS reviewed: June 2007

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Product Name : **TITAN® 4000 GASSED SERIES**

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