

Material Safety Data Sheet



1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: DWAG GASSING COMPANION SOLUTION

Recommended Use: Precursor ingredient used in some bulk explosives

Supplier: Orica Australia Pty Ltd

ABN: 004 117 828

Street Address: 1 Nicholson Street,
Melbourne 3000
Australia

Telephone Number: +61 3 9665 7111

Facsimile: +61 3 9665 7937

Emergency Telephone: 1 800 033 111 (ALL HOURS)

2. HAZARDS IDENTIFICATION

Based on available information, not classified as hazardous according to criteria of ASCC; NON-HAZARDOUS SUBSTANCE.

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

Poisons None allocated.

Schedule:

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components / CAS Number	Proportion	Risk Phrases
Non hazardous component(s)	0-1%	-
-		
Ammonium nitrate 6484-52-2	30-60%	-
Nitric acid 7697-37-2	0-<0.5%	R8, R35, R41
Water 7732-18-5	30-60%	-

4. FIRST AID MEASURES

Inhalation: Remove victim from area of exposure - avoid becoming a casualty. Seek medical advice if effects persist.

Skin Contact: If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice. Nitrates can be absorbed through cut, burnt or broken skin.

Product Name: DWAG GASSING COMPANION SOLUTION
Substance No: 00000009008

Issued: 16/05/2007

Version: 2

Material Safety Data Sheet

Eye Contact: If in eyes, wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.

Ingestion: Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek medical advice.

If dizziness or weakness occurs, remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. For all but the most minor symptoms arrange for patient to be seen by a doctor as soon as possible, either on site or at the nearest hospital. Monitor pulse and respiration rate. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Get to a hospital or doctor quickly.

Medical attention and special treatment: Treat symptomatically. Treat as for exposure to nitrates. May cause methemoglobinemia. Clinical findings: The smooth muscle relaxant effect of nitrate salts may lead to headache, dizziness and marked hypotension. Cyanosis is clinically detectable when approximately 15% of the haemoglobin has been converted to methaemoglobin (ie. ferric iron).

Symptoms such as headache, dizziness, weakness and dyspnoea occur when methaemoglobin concentrations are 30% to 40%; at levels of about 60%, stupor, convulsions, coma and respiratory paralysis occur and the blood is a chocolate brown colour. At higher levels death may result. Spectrophotometric analysis can determine the presence and concentration of methaemoglobin in blood.

Treatment:

1. Give 100% oxygen.
2. In cases of (a) ingestion: use gastric lavage, (b) contamination of skin (unburnt or burnt): continue washing to remove salts.
3. Observe blood pressure and treat hypotension if necessary.
4. When methaemoglobin concentrations exceed 40% or when symptoms are present, give methylene blue 1 to 2 mg/kg body weight in a 1% solution by slow intravenous injection. If cyanosis has not resolved within one hour a second dose of 2 mg/kg body weight may be given. The total dose should not exceed 7 mg/kg body weight as unwanted effects such as dyspnoea, chest pain, vomiting, diarrhoea, mental confusion and cyanosis may occur. Without treatment methaemoglobin levels of 20-30% revert to normal within 3 days.
5. Bed rest is required for methaemoglobin levels in excess of 40%.
6. Continue to monitor and give oxygen for at least two hours after treatment with methylene blue.
7. Consider transfer to centre where haemoperfusion can be performed to remove the nitrates from the blood if the condition of the patient is unstable.
8. Following inhalation of oxides of nitrogen the patient should be observed in hospital for 24 hours for delayed onset of pulmonary oedema. Further observation for 2-3 weeks may be required to detect the onset of the inflammatory changes of bronchiolitis fibrosa obliterans.

5. FIRE FIGHTING MEASURES

Hazards from combustion products: Non-combustible material. Decomposes on heating emitting toxic fumes including those of oxides of nitrogen .

Product Name: DWAG GASSING COMPANION SOLUTION
Substance No: 00000009008

Issued: 16/05/2007 **Version:** 2

Material Safety Data Sheet

Precautions for fire fighters and special protective equipment: Nitrate salts on their own are not combustible, however they will support the combustion of other materials. Decomposes on heating emitting irritating white fumes. Brown fumes indicate the presence of toxic oxides of nitrogen. On detection of fire the compartment(s) should be opened up to provide maximum ventilation. Fire-fighters to wear self-contained breathing apparatus and suitable protective clothing if there is a risk of exposure to products of combustion/decomposition. Fires should be fought from a protected location. Keep containers and adjacent areas cool with water spray. If safe to do so, remove containers from path of fire. A major fire may involve a risk of explosion. An adjacent detonation may also involve the risk of explosion.

Suitable Extinguishing Media: Water spray (large quantities).

Unsuitable Extinguishing Media: DO NOT USE the following as extinguishing media: Dry agent (carbon dioxide, dry chemical powder).

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures: Clear area of all unprotected personnel. Wear protective equipment to prevent skin and eye contact.

Methods and materials for containment and clean up: Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). DO NOT use combustible material. Collect and seal in properly labelled containers or drums for disposal. DO NOT return spilled material to original container. Ensure that contaminated material (clothing, pallets) is thoroughly washed. If contamination of sewers or waterways has occurred advise local emergency services.

In the case of a transport accident notify the Police, Explosives Inspector and Orica Australia Pty Ltd (Telephone: 1800 033 111 -- 24 hour service) and/or Orica New Zealand Pty Ltd (Telephone: 0800 734 607 -- 24 hour service).

7. HANDLING AND STORAGE

Conditions for safe storage: Store in cool place and out of direct sunlight. Store away from sources of heat or ignition. Avoid contamination with other chemicals. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for leaks.

Precautions for safe handling: Avoid skin and eye contact.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits:

No value assigned for this specific material by the National Occupational Health and Safety Commission. However, Exposure Standard(s) for constituent(s):

Product Name: DWAG GASSING COMPANION SOLUTION
Substance No: 00000009008

Issued: 16/05/2007 **Version:** 2

Material Safety Data Sheet

Nitric acid: 8hr TWA = 5.2 mg/m³ (2 ppm), 15 min STEL = 10 mg/m³ (4 ppm)

As published by the National Occupational Health and Safety Commission.

TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

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 work day. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.

These 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 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.

Engineering controls:

Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Exposure Standards. Natural ventilation should be adequate under normal use conditions. Keep containers closed when not in use.

Personal Protective Equipment:

The selection of PPE is dependant 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.

Orica Personal Protection Guide No. 1, 1998: B - OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES.

Wear overalls, safety glasses and impervious gloves. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Colour:	Pale Yellow
Odour:	Negligible
Solubility:	Soluble in water.
Specific Gravity:	1.17-1.18 @20°C
Flash Point (°C):	N App
Flammability Limits (%):	N App
Autoignition Temperature (°C):	N Av
Solubility in water (g/L):	Miscible
Decomposition Point (°C):	N Av
pH:	4.0-4.5
Viscosity:	N Av

10. STABILITY AND REACTIVITY

Chemical stability: Oxidising agent. Avoid contact with other chemicals.

Product Name: DWAG GASSING COMPANION SOLUTION
Substance No: 000000009008

Issued: 16/05/2007

Version: 2

Material Safety Data Sheet

- Conditions to avoid:** Avoid exposure to heat, sources of ignition, and open flame. Will react with organic materials and reducing agents. Avoid contact with combustible substances.
- Incompatible materials:** Ammonium nitrate is a powerful oxidising agent. It is incompatible with tetranitromethane, dichloroisocyanuric acid, trichloroisocyanuric acid, any bromate, chlorate, chlorite, hypochlorite or chloroisocyanurate, any inorganic nitrite and metal powders. Incompatible with combustible materials. Incompatible with reducing agents.
- Hazardous decomposition products:** Oxides of nitrogen.
- Hazardous reactions:** Oxidising agent. Supports combustion of other materials and increases intensity of a fire. Will react with organic materials, and reducing agents. Reacts with nitrites, chlorides, chlorates, permanganates and metal powders. Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

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

- Ingestion:** Swallowing can result in nausea, vomiting, diarrhoea, and gastrointestinal irritation. Swallowing large amounts may result in headaches, dizziness and a reduction in blood pressure (hypotension).
- Eye contact:** May be an eye irritant.
- Skin contact:** Contact with skin may result in irritation. Repeated or prolonged skin contact may lead to irritant contact dermatitis. Can be absorbed through cut, broken, or burnt skin with resultant adverse effects.
- Inhalation:** Breathing in mists or aerosols may produce respiratory irritation.
- Long Term Effects:**
No information available for the product.

Toxicological Data:

No LD50 data available for the product. However, for constituent(s) AMMONIUM NITRATE: (1):

Oral LD50 (rat): 2217 mg/kg

In humans and animals methaemoglobinaemia has occurred under untreated circumstances following overexposure to nitrates. Absorption of nitrates by any route may cause dilation of blood vessels by direct smooth muscle relaxation.

12. ECOLOGICAL INFORMATION

- Ecotoxicity** Avoid contaminating waterways.

Product Name: DWAG GASSING COMPANION SOLUTION
Substance No: 00000009008

Issued: 16/05/2007 **Version:** 2

Material Safety Data Sheet

13. DISPOSAL CONSIDERATIONS

Disposal methods: Refer to Waste Management Authority. Dispose of material through a licensed waste contractor. Normally suitable for disposal at approved land waste site. Empty containers must be decontaminated. Clean containers with water.

14. TRANSPORT INFORMATION

Road and Rail Transport

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

Marine Transport

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; NON-DANGEROUS GOODS.

Air Transport

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

15. REGULATORY INFORMATION

Classification: Based on available information, not classified as hazardous according to criteria of ASCC; NON-HAZARDOUS SUBSTANCE.

Poisons Schedule: None allocated.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

(1) 'Registry of Toxic Effects of Chemical Substances'. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinnati, 05/ 2007.

This material safety data sheet has been prepared by SH&E Shared Services, Orica.

Reason(s) for Issue:

5 Yearly Revised Primary MSDS

This MSDS 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 Orica Limited cannot

Product Name: DWAG GASSING COMPANION SOLUTION
Substance No: 00000009008

Issued: 16/05/2007 **Version:** 2

Material Safety Data Sheet



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 Orica representative or Orica Limited at the contact details on page 1.

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

Product Name: DWAG GASSING COMPANION SOLUTION
Substance No: 00000009008

Issued: 16/05/2007

Version: 2