


Section 1 – Identification of the Material and Supplier

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| Product Name Ammonium nitrate | | |
| Other names LDAN, TGAN, EGAN, porous prill. Company product code 1825. | | |
| Recommended use Blasting agent, explosive manufacture, and fertiliser manufacture. | | |
| Company name CSBP Limited | | |
| Address Kwinana Beach Road, KWINANA | State Western Australia | Postcode 6167 |
| Telephone number (08) 9411 8777 (Australia), +61 8 9411 8777 (Overseas) | Emergency telephone number 1800 093 333 (Australia), +61 8 9411 8444 | |

Section 2 – Hazard Identification

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| <p>Hazard Classification, including a statement of overall hazardous nature HAZARDOUS SUBSTANCE Ammonium nitrate is classified as hazardous according to Australian WHS Regulations. DANGEROUS GOODS Ammonium nitrate is classified for physicochemical hazards and specified as dangerous in the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code), 7th Edition INTERNATIONAL MARITIME DANGEROUS GOODS CODE (IMDG) Ammonium nitrate is classified for physicochemical hazards and specified as dangerous in the IMDG Code, 2014 Edition.</p> | |
| <p>GHS Classification(s) Oxidising Solids: Category 3 Acute Toxicity: Oral: Category 5 Serious Eye Damage / Eye Irritation: Category 2A</p> | |
| <p>Label elements</p> <p>Signal word WARNING</p> <p>Pictogram(s)</p> <div style="text-align: center;">  </div> | |
| <p>Hazard statement(s)</p> <p>H272 May intensify fire (oxidizing agent). H303 May be harmful if swallowed. H319 Causes serious eye irritation. AUH044 Risk of explosion if heated under confinement. AUH031 Contact with acids liberates toxic gas.</p> | |
| <p>Prevention statement(s)</p> <p>P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P220 Keep/store away from clothing/incompatible materials/combustible materials. P221 Take any precaution to avoid mixing with combustibles/incompatible materials.</p> | |

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| P264 | Wash thoroughly after handling. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| Response statement(s) | |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P312 | Call a POISON CENTER or doctor/physician if you feel unwell. |
| P337 + P313 | If eye irritation persists: Get medical advice/attention. |
| P370 + P378 | In case of fire: Use appropriate media for extinction. |
| Storage statement(s) | |
| None allocated. | |
| Disposal statement(s) | |
| P501 | Dispose of contents/container in accordance with relevant regulations. |
| Other hazards | |
| No information provided. | |

Section 3 – Composition/Information on Ingredients

| Chemical identity of ingredients | Proportion of ingredients | CAS Number for ingredients |
|----------------------------------|---------------------------|----------------------------|
| Ammonium nitrate | 99 % (wt/wt) | 6484 -52-2 |
| Moisture and additives | Remainder | |

Section 4 – First Aid Measures

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| <p>First Aid</p> <p>Ammonium nitrate is moderately toxic if large amounts are swallowed. If more than a small quantity has been swallowed seek medical attention. Training on handling ammonium nitrate incidents using this MSDS should be provided before any ammonium nitrate handling or use commences.</p> <p>First Aid Facilities</p> <p>First aid procedures, equipment, medication and training for the treatment of injury by ammonium nitrate should be in place BEFORE the use commences.</p> <p>Equipment in place should be:</p> <ul style="list-style-type: none"> • Safety shower and eyewash stations immediately accessible in the workplace; • Eye-wash bottle; • Fresh, clean cool drinking water; • Oxygen; • “Space” or thermal blankets for treating patients for shock; • Personal protective equipment for use by first aid personnel. <p>FIRST AID PROCEDURES FOR DEALING WITH THIS PRODUCT AND EXPOSURE TO IT</p> <p>1. Personal Protection By First Aid Personnel</p> <p>First aid personnel providing first aid treatment to a patient injured by ammonium nitrate should observe the following precautions for their own personal protection:</p> <ul style="list-style-type: none"> • Avoid contact with ammonium nitrate by wearing protective gloves; • Wear chemical goggles to prevent ammonium nitrate particles entering eyes; • Wear P2 type canister respirator if rescue area is contaminated by airborne ammonium nitrate dust. <p>2. Swallowed</p> <p>If person is conscious, rinse mouth thoroughly with water immediately and give water or milk to drink. DO NOT induce vomiting. Seek medical assistance if more than a small quantity has been swallowed, when</p> |
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relevant symptoms occur after swallowing.

3. Eyes

Immediately irrigate with copious quantities of water, while holding eyelids open, for at least 15 minutes. Seek medical attention if irritation persists.

4. Skin

Wash affected areas with copious amounts of water. Remove all contaminated clothing and laundry before re-use.

5. Inhalation

Remove affected person from exposure to a well ventilated area. Keep warm and at rest. In emergency, if breathing is difficult give oxygen. If the affected person suffers cardiac arrest commence cardio-pulmonary resuscitation immediately. Seek urgent medical attention.

ADVICE TO DOCTOR.

This product contains nitrates, which may be reduced to nitrites by intestinal bacteria. Nitrites may affect the blood (methaemoglobinaemia) and blood vessels (vasodilation and a fall in blood pressure). Effects peak within 30 minutes. Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin. Institute cardiac monitoring, especially in patients with coronary, artery or pulmonary disease.

Long Term Complications

No long term complications are known.

Further information about the treatment for exposure to this product can be obtained from the Poisons Information Centre on (08) 13 1126 (Australia only)

Section 5 – Fire Fighting Measures

Product flammability

Ammonium nitrate is not flammable under normal applications and is not considered a fire risk, but will support combustion in an existing fire by liberating oxygen – even if smothered. It is for this reason that fires involving ammonium nitrate cannot be extinguished by the prevention or air ingress (for example, smouldering with steam) because of the *in situ* provision of oxygen from the ammonium nitrate itself. Thermal decomposition may result in toxic gases, such as oxides of nitrogen and ammonia, being produced.

Suitable extinguishing media

Water spray in large quantities. WARNING: explosion risk. DO NOT USE the following as extinguishing media: Dry agent -carbon dioxide, dry chemical powder. Extinguishing methods based on smothering are ineffective in the case of oxidising agents.

Hazard from combustion products

Decomposes on heating; emitting irritating white or orange & brown fumes of toxic oxides of nitrogen

Special protective precautions and equipment for fire fighters

Wear full protective clothing, including respiratory protection.
Inert chemical absorbent and substantial amounts of water will be required to clean up a large spill.
Portable showers and eyewash may also be needed.
Prevent run-off into drains and waterways.
WARNING: Explosion risk in case of fire, especially if contaminated or confined. An adjacent detonation may also involve the risk of explosion. Molten product may explode from friction, shock, heat or containment. If safe to do so, prevent molten product being confined in drains, pipes, etc.

Fire-fighters to wear self-contained breathing apparatus and suitable protective clothing if there is a risk of exposure to products of combustion / decomposition.

WARNING: Explosion risk in case of fire. With an intense fire evacuate the area of all personnel to at least 1000 metres.

If safe to do so, remove containers from path of fire.

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If safe to do so, prevent molten product being confined in drains, pipes, etc.
If safe to do so, keep containers and adjacent areas cool with water sprays
Prevent spillage or run-off from entering drains or water courses.

Hazchem Code

1Z (Note: 1Y has been approved by the Competent Authority)
IMDG EMS Fire: F-H; IMDG EMS Spill: S-Q

Section 6 – Accidental Release Measures

Emergency procedures

Hazardous conditions may result if an ammonium nitrate spill is managed improperly. Make plans in advance to handle possible emergencies, including obtaining stocks of inert absorbent materials, to avoid both human and environmental exposure. Always wear recommended personal protective equipment and respiratory protection.

Methods and Materials for containment and clean up

For all spills, evacuate unprotected personnel upwind and out of danger. Remove sources of heat and ignition. Restrict access to spill site. Any spillage should be contained and recovered. Do not allow to mix with sawdust and other combustible organic substances.

Small Leaks

If possible contain the area of the spill, sweep into a clean labelled open container and recycle.

Large Spills

If possible contain the area of the spill. A front end loader may be required to scoop up spill into a clean container. Depending on the degree and nature of contamination, dispose of by use as fertilizer on farm or authorised waste facility.

Wash down area and prevent run-off into drains, sewers or waterways. Soak up wet material using absorbent material such as vermiculite or sand and dispose at authorised waste facility.

Section 7 – Handling and Storage

Precautions for safe handling

Regulated dangerous goods as Oxidizing Agent Class 5.1.

Avoid skin and eye contact and breathing in dust. Avoid handling which leads to dust formation. Keep material away from heat or ignition sources.

Conditions for safe storage, including any incompatibilities

Conditions for safe storage, including any incompatibilities:

Store in a cool, dry, well-ventilated place. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Store away from combustible materials.

Ammonium Nitrate may react violently with certain chemicals including organic materials, reducing agents, metal powders, strong acids, nitrites, chlorates, chlorides and permanganates

Keep containers closed when not in use - check regularly for spills. Do not allow pallets, ropes, covers or other equipment to become impregnated with ammonium nitrate.

This material is a security sensitive product and needs to be securely stored and accurately accounted for.

Where the nature of the bagged product and climatic conditions so require, store under conditions that will avoid breakdown by thermal cycling (wide variation in temperature). The product should not be stored in direct sunlight for extended periods to avoid physical breakdown due to thermal cycling.

Section 8 – Exposure Controls/Personal Protection

National exposure standards

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No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for decomposition product(s): Nitrogen dioxide: 8hr TWA = 5.6 mg/m³ (3 ppm), 15 min STEL = 9.4 mg/m³ (5 ppm) As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.
General disclaimer included detailing exposure standards as guides only and levels should be kept as low as workable.

Biological limit values

No data available.

Engineering controls

Avoid high dust concentration and provide ventilation where necessary.

Personal protective equipment

PPE: The selection of PPE is dependent 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.

Eye and Face Protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: Tightly-fitting goggles CEN: EN166.

Skin Protection: Wear PVC gloves when handling the product to prevent contact. Wear long trouser and long sleeves to prevent contact

Respiratory Protection: Avoid generating and inhaling dusts. If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.



Section 9 – Physical and Chemical Properties

Appearance (colour, physical form, shape)

White odourless prills, with strong disagreeable acid taste.

Odour

Odourless

pH

pH of 10% solution: > 4.5

Vapour pressure

Ammonium nitrate does not exert significant vapour pressure.

Vapour density

Not applicable.

Boiling point/range

Decomposes from 170 °C before boiling.

Freezing/melting point

170 °C.

Solubility

Solubility in water: 118.3 g/100g of water at 0 °C; slightly soluble in alcohol; not soluble in acetone.

Specific gravity or density

Typical Bulk Density: 755 ± 25 kg/m³ (refer to contract for specification).

Flash point and method of detecting flash point

Ammonium nitrate does not give off flammable vapours.

Upper and lower flammable (explosive) limits in air

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Ammonium nitrate is not flammable.

Ignition temperature

Not applicable.

Viscosity

Not applicable.

Section 10 – Stability and Reactivity

Chemical stability

When stored and handled in accordance with Australian Standard AS 4326 *The storage and handling of oxidizing agents*, ammonium nitrate remains stable.

Conditions to avoid

Store away from sources of heat or fire, especially in a confined space. Keep away from combustible materials and organic substances. Avoid storage and contamination with chlorine bleaches, pool chlorine and hypochlorites. Ensure that ammonium nitrate fertiliser is not stored near hay, straw, grain, diesel oil, greases. Do not permit smoking and the use of naked lights in the storage area for ammonium nitrate. Restrict stack size for bagged product (according to local regulations). Any building used for the storage of ammonium nitrate should be dry and well ventilated. Where the nature of the bagged product and climatic conditions so require, store under conditions that will avoid breakdown by thermal cycling (wide variation in temperature). The product should not be stored in direct sunlight to avoid physical breakdown due to thermal cycling. Avoid excessive generation of dust. Avoid contamination by combustible (e.g., diesel oil, grease, etc.) and incompatible materials. Avoid unnecessary exposure to the atmosphere to prevent moisture pick up.

Incompatible materials

Reactive or incompatible with the following materials:
 Combustible materials such as cloth, leaf litter and hydrocarbon liquid.
 Reducing materials such as permanganates.
 Strong acids such as Nitric Acid.
 Chlorine containing materials such as: Chlorates, chlorites & pool chlorine.
 Metals and metal powders: Copper, zinc, or their alloys (bronze, brass, galvanized metals, etc.), aluminium powder and mild steel.

Hazardous decomposition products

When heated to decomposition (unconfined) produces nitrous oxide, white ammonium nitrate fumes and water. Other hazardous decomposition products include irritating toxic brown fumes of nitrogen oxides (NO_x). May evolve nitrogen oxides (nitrous oxide) and ammonium nitrate when heated to decomposition

Hazardous reactions

Contamination of ammonium nitrate with chlorine bleaches, pool chlorine and hypochlorites may result in the formation of explosive nitrogen trichloride. When mixed with strong acid ammonium nitrate produces toxic brown nitrogen dioxide gas. When molten, ammonium nitrate may decompose due to shock or pressure. Ammonium nitrate may react violently with nitrites, chlorates, chlorides and permanganates.

Section 11 – Toxicological Information

HEALTH EFFECTS

When handled in accordance with the guidelines in this material safety data sheet, ammonium nitrate should not present any health effects. If this product is mishandled, symptoms that may arise are:

Acute:

Ammonium nitrate has moderate toxicity if swallowed. It is not classified as hazardous according to criteria of WorkSafe Australia.

Inhalation:

High mist concentration of air-borne material may cause irritation to the nose and upper respiratory tract; symptoms may include coughing and sore throat. Prolonged exposure may be harmful.

Skin:

Prolonged contact may cause some irritation, including redness and itching.

Eye:

May cause irritation, redness and pain following contact due to abrasive nature of material.

Swallowed:

Presents moderate toxicity, unless large amounts are ingested. Large amounts give large to gastro-intestinal irritation, with symptoms such as nausea, vomiting and diarrhoea. Large amounts may also cause dilation of blood vessels by direct smooth muscle relaxation and methaemoglobinaemia (excessive conversion of haemoglobin to methaemoglobin, which is incapable of binding and carrying oxygen – methaemoglobin is formed when iron in the haem molecule is oxidised from the ferrous to the ferric state). Symptoms include dizziness, abdominal pain, vomiting, bloody diarrhoea, weakness, convulsions and collapse. LD₅₀ (Oral, rat) = 2,217 mg/kg.

Chronic:

Prolonged or repeated exposure may cause drying of the skin with cracking and irritation that may lead to dermatitis.

Section 12 – Ecological Information

Ecotoxicity

Ammonium nitrate is a plant nutrient and large contamination may kill vegetation and cause poisoning in livestock and poultry.

Ammonium nitrate is of low toxicity to aquatic life and spills may cause algal blooms in static waters.

Persistence and degradability

When released into the soil, ammonium nitrate is not expected to evaporate significantly, but is expected to leach into groundwater. In damp soil the ammonium ion, NH₄⁺, is adsorbed by the soil. When released into water, ammonium nitrate is expected to readily biodegrade; the nitrate ion, NO₃⁻, is mobile in water. The nitrate ion is the predominant form of plant nutrition. It follows the natural nitrification/denitrification cycle to give nitrogen.

Mobility

Very soluble in water. The NO₃⁻ ion is mobile. The NH₄⁺ ion is adsorbed by the soil.

Environmental fate (exposure)

Low toxicity to aquatic life. TL_m 96 between 10 – 100 ppm.

No effects on growth or feeding activities were observed in largemouth bass and channel catfish exposed to concentration of 400 mg NO₃⁻/L.

Acute Toxicity to Fish

48 hr LC₅₀ (*Cyprinus carpio*): 1.15 - 1.72 mg un-ionised NH₃/L; 95 – 102 mg total NH₃/L;

96 hr LC₅₀ (Chinook Salmon, rainbow trout, bluegill): 420 -1,360 mg NO₃⁻/L;

TL_m (Tadpoles): 910 mg NH₃/L.

Chronic Toxicity to Fish

7 day LC₅₀ (Fingerling rainbow trout): 1,065 mg/L.

Acute Toxicity to Aquatic Invertebrates

EC₅₀ (*Daphnia magna*): 555 mg/L; 124.9 mg total NH₃/L.

Chronic Toxicity to Invertebrates

Up to 7 days NOEC (*Bullia digitalis*): 300 mg/L.

Bioaccumulative potential

Ammonium nitrate does not show any bio-accumulation phenomena.

Section 13 – Disposal Considerations

Disposal methods and containers

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Refer to local State Land Waste Management Authority. Depending on degree and nature of contamination, dispose of by use as fertiliser on farm or to authorised waste facility. Empty containers (bulka bags) must be decontaminated by rinsing thoroughly with water. Rinsing water needs to be disposed of carefully. Avoid contaminating waterways.

Special precautions for landfill or incineration

No data available.

Section 14 – Transport Information (ADG & IMDG)

UN Number

1942

UN Proper shipping name

Ammonium Nitrate

Class and subsidiary risk

5.1 Oxidizing Agent

Packing group

III

Special precautions for user

Not to be loaded with explosives (Class 1), flammable gases (Class 3), toxic gases (class 2.3), Flammable liquids (Class 3), flammable solids (Class 4.1), spontaneous combustible substances (Class 4.2), dangerous when wet substances (Class 4.3), organic peroxides (Class 5.2), toxic substances, where the toxic substances are fire risk substances (Class 6), radioactive substances (Class 7), corrosives (Class 8), miscellaneous dangerous goods, where the miscellaneous dangerous goods are fire risk substances (Class 9), and fire risk substances other than dangerous goods; however, exemptions apply.

Hazchem code

1Y

IMDG EMS Fire: F-H; IMDG EMS Spill: S-Q

Section 15 – Regulatory Information

Australian regulatory information

Ammonium nitrate is not listed as a poison in the Standard for the Uniform Scheduling of Drugs and Poisons.

Additional national and/or international regulatory information

OSHA: Hazardous by definition of Hazard Communication Standard (40 CFR Part 370).

Classifications

Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listing(s)

AUSTRALIA: AICS (Australia Inventory of Chemical Substances)

All components are listed on the AICS; or are exempt.

Section 16 – Other Information

Key / legend to abbreviations and acronyms used in the SDS

| | |
|---------|--|
| NOHSC | National Occupational Health and Safety Commission |
| SUSDP | Standard for the Uniform Scheduling of Drugs and Poisons |
| ES-TWA | Exposure Standard – Time weighted average |
| ES-STEL | Exposure Standard – Short term exposure level |

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| ES-Peak | Exposure Standard – Peak level |
| FORS | Federal Office of Road and Safety |
| LC ₅₀ : | Lethal concentration 50, median lethal concentration |
| LD ₅₀ | Lethal dose 50. The single dose of a substance that causes the death of 50% of an animal population from exposure to the substance by any route other than inhalation |
| % (wt/wt) | Percent amount on a weight per weight basis |
| % (wt/vol) | Percent amount on a weight per volume basis |
| PPM | Parts per million |
| Zone 1 Class 1 | An area in which an explosive gas atmosphere can be expected to occur periodically or occasionally during normal operation. (More than 10 hours per year but less than 1000 hours per year) |

Literature references

- Occupational Safety and Health Regulations 1996, State Law Publisher, Western Australia.
- Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals, Safe Work Australia, December 2011
- Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition, National Transport Commission, 2015.
- Chemical Rubber Handbook, D.R. Lide, CRC Press, 65th Edition, Boca Ratón, 1987.
- Perry's Chemical Engineers' Handbook, R.H. Perry & D. Green, 6th Edition, McGraw-Hill, New York, 1984.
- International Critical Tables of Numerical Data, Physics, Chemistry and Technology, National Research Council, 1st Edition, McGraw-Hill, New York, 1928.
- Condensed Chemical Dictionary, G.G Hawley, 8th Edition, Van Nostrand Reinhold, New York, 1950.
- Dangerous Properties of Industrial Chemicals, N.I.Sax & R.J. Lewis (Sr), 7th Edition, Van Nostrand Reinhold, New York, 1984.
- Patty's Industrial Hygiene and Toxicology, F.A. Patty, 3rd Revised Edition, G.D. & F.E. Clayton (Editors), John Wiley & Sons, New York, 1981.
- Matheson Gas Data Book, W.Braker & A.L. Mossman, 6th Edition, Matheson Gas Products, Secaucus, 1980.
- Encyclopaedia of Occupational Health and Safety, International Labour Office, 4th Edition, J.M. Stellman (Editor), Geneva, 1998
- Kirk-Othmer Encyclopaedia of Chemical Technology, 4th Edition, Wiley InterScience, New York, 1997.
- Ullmann's Encyclopaedia of Industrial Chemistry, F. Ullmann, 6th Edition, Wiley Interscience, New York, 2001.
- Standard for the Uniform Scheduling of Drugs and Poisons, National Health and Medical Research Council, Australian Government Publishing Service, Canberra, 1992.
- Poisons Act 1964, State Law Publisher, Western Australia, Reprinted 22 January 1999.
- Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment, [NHSC:1003(1991)].
- Hazardous Materials Handbook for Emergency Responders, Onguard Training for Life, J. Varela (Editor), Van Nostrand Reinhold, New York, 1996.
- Chemwatch www.chemwatch.net
- Guidance for the Compilation of Safety Data Sheets for Fertilizer Materials, European Fertilizer Manufacturers Association, online at www.efma.org/Publications/Guidance/Index.asp

Sources for data

No data available.

Important Notes



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SAFETY DATA SHEET

Ammonium Nitrate



1. To the best of our knowledge this document complies with the Preparation of Safety Data Sheets for Hazardous Chemicals; Code of Practice February 2016.
2. This safety data sheet summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this safety data sheet and consider the information in the context of how the product will be handled and used in the workplace, including in conjunction with other products.
3. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact the Safety Department, CSBP Limited on (08) 9411 8777 (Australia), +61 8 9411 8777 (Overseas).
4. Our responsibility for products sold, is subject to our terms and conditions, a copy of which is sent to our customers, and is also available on request.
5. CSBP reserves the right to make change to this safety data sheets without notice.