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MATERIAL SAFETY DATA SHEET

AMMONIUM NITRATE (34 - 0 - 0)

PRODUCT IDENTIFICATION

PRODUCT NAME PATONS AMMONIUM NITRATE (34 - 0 - 0)	COMPOSITION Nitrogen as ammonium 17.2% Nitrogen as nitrate 17.2% NITROGEN (N) TOTAL 34.4%
SYNONYM S NAME(S) AMMONIUM SALTPETRE, Ammonium nitrate	FORMULA NH ₄ NO ₃
CHEMICAL FAMILY	C.A.S. NUMBER 6484 - 52 - 2
HAZARD CLASSIFICATION Not classified as hazardous according to criteria of Worksafe Australia. Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail. Class 5.1 Oxidizing Agent Poisons Schedule (Aust/Toxic Substance (NZ): N/A - Not Applicable	

COMPOSITION/INFORMATION ON INGREDIENTS

Recommended Use: Fertilizer, (soil nutrient), fertilizer raw material.

Appearance: White / off white granules. Hygroscopic.

EMERGENCY AND FIRST AID PROCEDURES

IF IN THE EYES:	Immediately flush with plenty of water for at least 15 minutes. In all cases of eye contamination it is a sensible precaution to seek medical advice.
IF ON THE SKIN:	Wash contaminated area with soap or mild detergent and water. If chemical or solution soaks through clothing, remove clothing in area and wash contaminated skin as above. If irritation persists after washing, seek medical attention. If molten: Material should contact the skin and adhere, cool quickly with running water - do not attempt to remove. If irritation occurs seek medical advice.
IF INHALED:	Move to fresh air. Treat symptomatically. Get medical attention promptly.
IF INGESTED:	Rinse mouth with water. Give quantities of water if patient is conscious. DO NOT induce vomiting. Seek medical assistance.

Notes to Physician:

Clinical Findings: The smooth muscle relaxant effect of ammonium nitrate may lead to headache, dizziness and marked hypotension (2). 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 a 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 per 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 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.

FIRE FIGHTING MEASURES

Specific Hazards: Not combustible, but is a strong oxidising agent. Supports combustion. Increases intensity of a fire.

Further Advice: On its own is not combustible, however will support combustion. Decomposes on heating emitting irritating white fumes of nitrous oxide and ammonium nitrate mist. Brown fumes indicate the presence of toxic oxides of nitrogen. On detection of fire the compartments should be opened up to provide maximum ventilation. Fire fighters to wear self contained breathing apparatus if risk of exposure to products of composition/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 the path of fire. A major fire may involve a risk of explosion in the event of contamination or strong confinement. An adjacent detonation may also involve the risk of explosion.

Suitable extinguishing media: Water Spray (Large quantities)

ACCIDENTAL RELEASE MEASURES

Shut off all possible sources of ignition. Clear area of all unprotected personnel. Wear protective equipment to prevent skin and eye contamination and inhalation of dust. Contain - prevent contamination of drains and waterways. Sweep up, but avoid generating dust. Collect and seal in properly labelled drums containers for disposal or reuse. Wash area with excess water. The Australian Code for the Transport of Dangerous Goods by Road and Rail identifies this pollutant to the environment. In the event of a spillage notify the local environmental protection authority or emergency services.

HANDLING AND STORAGE

Storage: Store in a cool, well ventilated area, away from sources of heat or ignition. Store away from combustible materials, reducing agents, metal powders, herbicides and fungicides. If using wooden pallets, these must be hardwood and periodically washed down with copious quantities of water to remove all traces of ammonium nitrate. Keep containers closed to prevent absorption of moisture from the atmosphere. Check regularly for spills.

This product when stored in a confined unventilated space/hold can give off an ammonia or other odour and lead to depletion of oxygen within this space and other confined spaces. It is therefore essential that ventilation is carried out prior to entry to all ship holds.

EXPOSURE CONTROLS/PERSONAL PROTECTION

National occupational exposure limits

No value assigned for this specific material by the National Occupational Health and Safety Commission (Worksafe Australia).

Engineering Measures: Avoid generating and inhaling dusts. Use in well ventilated area. Keep containers closed when not in use.

Personal protection equipment: Not in use

Avoid eye contact and repeated or prolonged skin contact. Wear overalls, safety glasses and impervious gloves. Avoid generating and inhaling dusts. If dust exists, wear dust respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet.

PHYSICAL AND CHEMICAL DATA

SPECIFIC GRAVITY	MELTING POINT (°c) 180	Flammability Limits % N/A
VAPOUR PRESSURE (mmHg) N/A	Boiling Point Decomposes	Autoignition Temp (c) Not Available
VAPOUR DENSITY N/A	EVAPORATION RATE (BUTYL ACETATE = 1) NA	% Volatility by volume N/A
FLASH POINT (C) N/A	pH (10% water solution)	5.0

STABILITY AND REACTIVITY

STABILITY: Powerful oxidising agent. Will react with organic materials, reducing agents and metal powders. May explode under confinement and temperatures, but not readily detonated. When heated to composition (unconfined) produces nitrous oxide, white ammonium nitrate fumes and water. When mixed with strong acids, and occasionally during blasting, produces irritating and toxic brown gas, mostly of nitrogen dioxide. When molten may decompose violently due to shock or pressure. Under certain conditions may react violently with nitrites, chlorates, chlorides or permanganates.

TOXICOLOGICAL INFORMATION

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

INGESTION: Swallowing can result in nausea, vomiting, gastric irritation, headaches, dizziness and hypertension.

EYE CONTACT: May be an eye irritant.

SKIN CONTACT: Contact with skin may result in irritation. Exposure to molten material may cause skin burns.

INHALATION: Inhalation of dust may result in respiratory irritation.

LONG TERM EFFECTS: No information available for product.

ACUTE TOXICITY/CHRONIC TOXICITY: Oral LD50(rat) :2217 mg/kg (1)

In humans and animals methaemoglobinaemia has occurred under untreated circumstances following the ingestion of nitrates. (2)

ECOLOGICAL INFORMATION

Ammonium nitrate was evaluated at 5, 10, 25 and 50 mg (NH₄⁺)/l.

The fertility of *Daphnia magna* was decreased at 50 mg/l. Post embryonic growth of crustacea was impaired at 10, 25, 50 mg/L. (2)

40 hr LC50 (*Aspergillus niger*): 15 mg/L (36C) (2)

DISPOSAL CONSIDERATIONS

Refer to State Land Waste Management Authority

TRANSPORT INFORMATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

UN-No: 1942

Class: 5.1: Oxidizing Agent

Hazchem code: 1[Y]

EPG: 5.1.002

Packing Group: Packing Group 3

Proper Shipping Name: AMMONIUM NITRATE

Segregation Dangerous Goods: Not to be loaded with explosives (class 1), flammable gases (class 2.1), toxic gases (class 2.3), flammable liquids (class 3), flammable solids (class 4.1), spontaneously combustible substances (class 4.2), dangerous when wet substances (class 4.3), organic peroxides (class 5.2), poisonous substances (where the poisonous substances are fire risk substances)(class 6) radioactive substances (class 7), corrosives (class 8), miscellaneous dangerous goods (class 9), where the miscellaneous dangerous goods are fire risk substances, fire risk substances other than dangerous goods, however exemptions may apply.

REGULATORY INFORMATION

Not classified as hazardous according to criteria of Worksafe Australia.

Poisons Schedule (Aust)/Toxic Substance (NZ): N/A - Not Applicable

OTHER INFORMATION

Literary Reference:

- 1) Registry of Toxic Effects of Chemical Substances 1995” (Ed. D.Sweet), US Dept. of Health & Human Services: Cincinnati 1995).
 - 2) Material Safety Data Sheet – Vittrade Ltd
 - 3) ‘Dictionary of Substances and their Effects’ Richardson, M.L & Gangoli, S. (Royal Society of Chemistry 1993)
- This chemical is listed on the Australian Inventory of Chemical Substances (AICS).

Disclaimer. All data given is derived from the manufacturers of the material and is for information only and unless specifically stated is without warranty. Users should ascertain the suitability of the products for particular applications. Typical figures are subject to usual variations and are given without guarantee.