POLAR Bulk Emulsion SX & UX

SAFETY DATA SHEET – BULK EXPLOSIVES

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Identifier:

Product Name: POLAR Bulk Emulsion (SX & UX Series)

Other Means of Identification:

Synonyms: POLAR Surface: SX, POLAR Underground: UX

Proper Shipping Name: AMMONIUM NITRATE EMULSION, intermediate for blasting explosives, liquid

Recommended Use of the Chemical and Restrictions on Use:

Recommended Use: Emulsion phase ingredient for surface and underground bulk explosive products.

This product is classified as Security Sensitive Ammonium Nitrate (SSAN) - various state and/or federal government controls may apply.

Restrictions on Use: Not for use in reactive ground.

Restricted to use only by authorised professionals.

Supplier's Details:

Supplier's Name: Nitro Sibir Australia

Address: Suite 3, Level 1, 1 Puccini Court
Stirling WESTERN AUSTRALIA 6021

Telephone: +61 8 9022 3821

Emergency Telephone Number:

Emergency Number: 1800 884 289 (all hours)

SDS Date: July 2023

2. HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture:

Classified as hazardous according to Safe Work Australia: HAZARDOUS CHEMICAL.
Classified as Dangerous Goods according to the criteria of the Australian Dangerous Goods Code: DANGEROUS GOODS.

GHS Label Elements, Including Precautionary Statements:

Oxidising Liquids – Category 2
Eye Damage / Irritation – Category 2A
Carcinogenicity – Category 2

Signal Word: Danger

Flame Over Circle

Exclamation Mark

Health Hazard

Hazard Statement(s):
H272: May intensify fire; oxidiser
H319: Causes serious eye irritation
H351: Suspected of causing cancer

Precautionary Statement(s):

Prevention:
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat/sparks/open flames/surfaces - No Smoking.
P220: Keep/store away from clothing/combustible materials.
P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P305+P351+P338: IF IN EYES: Rinse carefully with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: IF eye irritation persists: Get medical advice/attention.
P370+P378: In case of fire: Use water to extinguish if small and isolated. Refer to Section 5 of this Safety Data Sheet for extinguishing media.

Storage:
No storage statements.

Disposal:
P501: Dispose of contents in accordance with national/regional/local regulations.

POISONS SCHEDULE (SUSMP): None allocated.

Other Hazards Which do Not Result in Classification:

No data available.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Proportion
Ammonium Nitrate	6484-52-2	>60%
Fuels, diesel	68334-30-5	0 - <10%
Mineral Oil	8012-95-1	0 - <10%
Materials determined not to be hazardous	-	10 - <30%

4. FIRST AID MEASURES

Description of Necessary First Aid Measures:

General Advice: For advice, contact a doctor or Poisons Information Centre (131 126).

Inhalation: Move the victim to fresh air while avoiding becoming a casualty. Loosen restrictive clothing and keep at rest until fully recovered. If breathing is difficult or the patient develops a bluish tinge of the lips and/or skin, ensure airway is clear of any obstruction and allow a qualified person to administer oxygen through a face mask. Apply artificial respiration if patient is not breathing and seek immediate medical advice.

Eye: In case of eye contact, remove any contact lenses and flush immediately with plenty of water, also under the eyelids, for at least 15 minutes. DO NOT apply any eye ointments or preparations. As with all eye contamination, it is a sensible precaution to seek medical advice.

Skin: If contact with skin or hair occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water. If irritation develops, seek medical attention. Nitrates can be absorbed through cut, burnt and broken skin. Launder contaminated clothing prior to re-use.

Ingestion: Immediately rinse mouth with water. If swallowed DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek immediate medical assistance. For further advice, call the Poisons Information Centre on 131126.

Most Important Symptoms/Effects, Acute and Delayed:

Symptoms and Effects: May cause serious eye irritation leading to redness and tearing of the eye. Nitrates can be absorbed through skin that is burnt, cut or broken. Inhalation of oxides of nitrogen may cause delayed onset of pulmonary oedema.

Indication of Immediate Medical Attention and Special Treatment, if Necessary:

Information to Doctor: This product contains nitrates, which may be reduced to nitrites by intestinal bacteria. Nitrites may affect the blood (methaemoglobinemia) and blood vessels which may result in vasodilation and a fall in blood pressure. Clinical findings: nitrates may have a smooth muscle relaxant effect – can cause headache, dizziness and marked hypotension. 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 affected persons with coronary, artery or pulmonary disease.

Inhalation of decomposition products, possibly including oxides of nitrogen, may cause effects such as difficulty breathing, chest discomfort and pulmonary oedema, which may have a delayed onset. Exposed persons should be kept under medical observation for 24 hours.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Suitable Extinguishing Media: By its nature, the material is not combustible however if it is involved in fire, extinguish with coarse water spray in large quantities.

Unsuitable Extinguishing Media: Dry agents such as carbon dioxide and dry chemical powder are unsuitable. Extinguishing methods based on smothering are NOT effective in the case of oxidising agents.

Specific Hazards Arising from the Chemical:

Hazards from Combustion Products: Irritating or toxic fumes may be produced under fire conditions. Yellow to brown fumes indicate the presence of toxic oxides of nitrogen.

Special Protective Actions for Fire Fighters:

Precautions and Special Protective Equipment: Oxidising substance. Nitrates will support the combustion of other materials. Evacuate ALL personnel to a safe location. Fires may be fought from a protected location. The substance may burn to explosion under certain conditions. Irritating and toxic vapours may be produced - breathing apparatus operating in positive pressure mode should be used. Full protective clothing should be worn. Prevent the molten product from entering drains and waterways.

HAZCHEM CODE: 1Y

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

For Non-Emergency Personnel:	Prior to clean up of a spill, shut off all possible sources of ignition and ensure sufficient ventilation to any confined spaces. Clear the area of all unprotected personnel. In the case of a transport accident notify the emergency services, Explosives Inspector and Nitro Sibir Australia.
For Emergency Personnel:	Wear chemical resistant gloves, protective clothing, face mask and safety glasses to prevent skin and eye contact and inhalation of vapours. Caution: material can be very hot and contact may result in thermal burns. Product is slippery when spilt.

Environmental Precautions:

Environmental Precautions:	Contain the source and prevent the spread of the spill to ensure it does not contaminate drains and waterways. Do not flush into surface water or sanitary sewer systems. If contamination of drains or waterways occurs, advise the local emergency services.

Methods and Materials for Containment and Cleaning Up:

Methods for Containment:	Prevent run off into drains and waterways. Clean up immediately.
Methods for Cleaning Up:	Clean up with an absorbent non-combustible material eg. vermiculite or clean sand, to soak up the product. With a clean shovel, collect and seal material into properly labelled containers for disposal. Do not return spilled material to original container. Wash area down with copious amounts of water and ensure contaminated equipment is thoroughly washed. This material is classified as Security Sensitive Ammonium Nitrate (SSAN). Spillage recovery requires appropriate documentation and material to be accurately accounted for.

7. HANDLING AND STORAGE

Precautions for Safe Handling:

Advice for Safe Handling:	Handle with great care. Avoid skin and eye contact. Avoid all contact with other chemicals. Do not subject the product to impact, friction between hard surfaces or any form of heating. Use personal protective equipment. Keep away from sources of ignition – No smoking. Do not use in areas without adequate ventilation
General Hygiene Advice:	Handle in accordance with good industrial hygiene and safety practices. Wash hands before breaks and immediately after handling the product.

Conditions for Safe Storage Including any Incompatibilities:

Conditions for Safe Storage:	Store between 5 and 25°C in a dry, well-ventilated place away from sources of heat, ignition and direct sunlight. Keep containers closed when not in use and securely seal and protect against physical damage.
Storage Incompatibilities:	Do not store together with strong acids, strong alkalis, nitrates, chlorates, chlorites and permanganates.

Product Deterioration: Product deterioration is a process of gradual crystallisation of the ammonium nitrate and a thickening of the emulsion. If heated for long periods the emulsion may separate. Product that has deteriorated badly is unsuitable for use.

Storage Security: Ammonium nitrate emulsion is a security sensitive material and is subject to state and territory government controls issued by the relevant authority. All persons with unsupervised access to Security Sensitive Ammonium Nitrate (SSAN) require security clearances controlled and issued by local government authorities.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control Parameters:

Exposure Limits: No exposure value has been assigned to this material by Safe Work Australia, however for constituent(s) and decomposition product(s) according to SafeWork Australia Exposure Standards for Airborne Contaminants:

Oil mist, refined mineral: 8hr TWA – 5mg/m^3
Nitrogen dioxide: 8hr TWA – 5.6mg/m^3 (3ppm), 15min STEL – 9.4mg/m^3 (5ppm)

STEL – Short term exposure limit (STEL) means the time-weighted average maximum airborne concentration of a substance calculated over a 15 minute period.

TWA – 8-hour time-weighted average (TWA) means the maximum average airborne concentration of a substance when calculated over an eight-hour working day, for a five day working week.

Appropriate Engineering Controls:

Engineering Controls: Use only in a well-ventilated area or an area equipped with appropriate exhaust ventilation to ensure air concentrations of components are controlled below workplace exposure standards. Ensure that eyewash stations and safety showers are close to the workstation.

Individual Protection Measures, such as Personal Protective Equipment (PPE):

Individual Protection Measures: A detailed and documented risk assessment must be carried out to determine minimum PPE requirements.

Select PPE in accordance with the work being undertaken to minimise the potential for injury and illness due to exposure from the substance. Consider location of the work, ventilation, form and temperature of the product, environmental factors and handling method.

Wear safety glasses at all times. Chemical resistant, elbow-length impervious gloves should be worn when there is direct contact with the product. Use with adequate ventilation. If an inhalation risk is present, wear half-face filter respirator suitable for organic vapours. Wash contaminated clothing and other PPE prior to storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties and Safety Characteristics:

Physical State: Viscous liquid, gel

Colour: Slight golden tinge

Odour: Negligible odour

Odour Threshold: No data available

Melting / Freezing Point:	No data available
Initial Boiling Point and Boiling Range:	No data available
Flammability:	No data available
Lower / Upper explosion limit / flammability limit	No data available
Flash Point:	Not applicable
Auto-ignition temperature:	No data available
Decomposition Temperature:	No data available
pH:	No data available
Kinematic Viscosity:	No data available
Solubility:	Not soluble in water
Partition Coefficient:	No data available
Vapour Pressure:	No data available
Relative Density:	1.2 - 1.4 @ 20ºC
Vapour Density:	No data available
Particle Characteristics:	Not applicable
Oxidising Liquid:	No data available

10. STABILITY AND REACTIVITY

Reactivity:	Oxidising material. Reactive with acids, alkalis and reducing agents. Avoid contact with combustible materials.
Chemical Stability:	Stable at normal ambient temperature and pressure. Stable under recommended storage conditions.
Possibility of Hazardous Reactions:	Oxidising material. Supports combustion of other materials and increases intensity of a fire. A major fire may involve a risk of explosion, especially when under confinement. An adjacent detonation may also involve the risk of explosion. Thermal decomposition may produce fumes and toxic oxides of nitrogen.
Conditions to Avoid:	Store in isolation to prevent cross-contamination, and away from sources of heat and fire. Avoid contact with combustible material.
Incompatible Materials:	Incompatible with strong acids, strong alkalis, non-ferrous materials, combustible materials, nitrites, chlorates, chlorides, permanganates, organic substances and oxidising agents.
Hazardous Decomposition Products:	Possible oxides of nitrogen and oxides of carbon. When heated to decomposition (unconfined) ammonium nitrate produces nitrous oxide, white ammonium nitrate fumes and water. When mixed with strong acids, and occasionally during blasting, will produce an irritating toxic brown gas, mostly of nitrogen dioxide. When molten, may decompose violently due to shock or pressure.

11. TOXICOLOGICAL INFORMATION

General Advice:

The product itself has not been tested for toxicological effects. When handled in accordance with the guidelines in this Safety Data Sheet, ammonium nitrate emulsion should not present any adverse health effects.

Acute Toxicity:

No data is available.

Information on Likely Routes of Exposure:

Skin Corrosion / Irritation:	May cause irritation.
Serious Eye Damage / Irritation:	Causes serious eye irritation.
Respiratory or Skin Sensitisation:	No data is available.
Germ Cell Mutagenicity:	No data is available.
Carcinogenicity:	Contains a component that is a known or suspected carcinogen.
Reproductive Toxicity:	No data is available.
Specific Target Organ Toxicity (STOT) - Single Exposure:	No data is available.
Specific Target Organ Toxicity (STOT) - Repeated Exposure:	No data is available.
Aspiration Hazard:	Not a likely source of exposure.
Other Information on Acute Toxicity:	No data is available.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics:

Skin Contact:	Prolonged skin contact may defat the skin and cause irritant contact dermatitis. Can be absorbed through cut, broken or burnt skin with resultant adverse effects.
Inhalation:	May be irritant to the mucous membranes of the respiratory tract. Inhaling vapour may result in headache, dizziness, drowsiness and nausea.

Delayed and Immediate Effects and Also Chronic Effects from Short and Long Term Exposure:

Skin Contact:	Ammonium Nitrate can be absorbed through cut, burnt or broken skin and may cause dilation of blood vessels by direct smooth muscle relaxation and may cause methemoglobinemia.
Carcinogenicity:	A component, Diesel Fuel, has been classified as a Group 3 agent and has been shown to be carcinogenic in animal tests and has caused mutations in vitro.

Numerical Measures of Toxicity:

No information available for product.

Constituent Information:

Ammonium Nitrate: Oral LD50 – 2217mg/kg (rat), Inhalation LC50 - >88.8mg/L (rat) 4h

Diesel Fuel: Oral LD50 – 7500mg/kg (rat), Dermal - >2000mg/kg (rabbit), Inhalation LC50 – 4.6mg/L (rat) 4h

LD50 (Lethal Dose) – the amount of a material, given all at once under control conditions, which causes the death of 50% (one half) of a large number of test animals.

LC50 (Lethal Concentration) – concentration of a material in air that will kill 50% (one half) of test subjects (animals, typically mice or rats) when administered as a single exposure (typically 1 or 4 hours).

Interactive Effects:

No information available.

12. ECOLOGICAL INFORMATION

Exotoxicity:

The mixture itself has not been tested for aquatic toxicity or other ecotoxocological effects, and therefore the classification of the mixture is based on the classification of the individual components.

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 and 50 mg/L.

Persistence and Degradability:

No data is available.

Bioaccumulative Potential:

No data is available for the product itself. Ammonium Nitrate has low potential for bioaccumulation (based on substance properties).

Mobility in Soil:

No data is available.

Other Adverse Effects:

For component Diesel Fuel, floats on water and may form a film on water surfaces causing physical damage to organisms. Oxygen transfer may also be impaired – avoid contaminating waterways.

13. DISPOSAL CONSIDERATIONS

Disposal Methods:

Dispose of this material in accordance with federal, state, territory and site regulations. All requirements of AS2187 must be adhered to. Destruction of explosives must be carried out by suitably qualified personnel. Small volumes may be disposed of or destroyed by dilution in water jets and/or detergent solution.

Larger amounts of the product may be disposed of by reworking through the manufacture process, by inclusion in a waste blast, or by using the services of a licensed waste contractor. Advice for specific situations can be obtained by contacting Nitro Sibir Australia.

14. TRANSPORT INFORMATION

Road and Rail:

This product is classified as Dangerous Goods by the criteria of the Australian Code for the Transport of Explosives by Road and Rail.

UN Number:	UN3375
Proper Shipping Name:	AMMONIUM NITRATE EMULSION or SUSPENSION or GEL, intermediate for blasting explosives, liquid
Hazard Class:	5.1 Oxidizing Agent
HAZCHEM Code:	1Y
Packing Group:	II

Marine Transport:

This product is classified as Dangerous Goods by the criteria of the International Marine Dangerous Goods Code (IMDG Code) for transport by sea. This product is NOT a known marine pollutant according to the IMDG Code.

UN Number:	UN3375
Proper Shipping Name:	AMMONIUM NITRATE EMULSION or SUSPENSION or GEL, intermediate for blasting explosives, liquid
Hazard Class:	5.1 Oxidizing Agent
Packing Group:	II
IMDG EMS Fire:	F-H
IMDG EMS Spill:	S-Q

Air Transport:

Transport of this product is prohibited under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in passenger aircraft and cargo aircraft.

Environmental Hazards:

This product is NOT a known marine pollutant according to the IMDG Code.

15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations Specific for the Product in Question:

Australia:

Classified as dangerous goods in accordance with the Australian Code for the Transport of Explosives by Road and Rail.

Classified as a hazardous chemical according to the criteria of SafeWork Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons. Not Scheduled.

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

International Agreements:

None applicable.

16. OTHER RELEVANT INFORMATION

Revision Date:	July 2023	
Reason(s) for Issue:	Addition of information regarding the product classification as a chemical of security concern.	
Abbreviations used:	CAS No	Chemical Abstract Service number (chemical unique identifier)
	g/cm^3	grams per cubic centimetre
	GHS	Globally Harmonised System of Classification and Labelling of Chemicals
	pH	Scale of acidity from 0 (acidic) to 14 (alkaline), pH 7 is neutral
	PPE	Personal Protective Equipment
	STEL	Short-term Exposure Limit
	STOT	Specific Target Organ Toxicity
	SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
	TWA	Time Weighted Average
References:	Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)	
	Australian National Security: National Code of Practice for Chemicals of Security Concern	
	Globally Harmonized System of Classification and Labelling of Chemicals (GHS) – Seventh revised edition	
	National Drugs & Poisons Scheduling Committee (NDPSC): Standard for the Uniform Scheduling of Medicines and Poisons	
	Regulation on Classification, Labelling and Packaging of Substances and Mixtures: Regulation (EC) No 1272/2008 (CLP)	
	SafeWork Australia: Workplace Exposure Standards for Airborne Contaminants	
	Safe Work Australia: Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice	

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