

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Identifier:

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

Other Means of Identification:

Synonyms: POLAR SX ANFO Blends, POLAR SX Gassed ANFO Blends, POLAR UX ANFO Blends, POLAR UX Gassed ANFO Blends

Proper Shipping Name: EXPLOSIVE, BLASTING, TYPE E

Recommended Use of the Chemical and Restrictions on Use:

Recommended Use: Blasting explosive in surface and underground mining operations usually delivered into a borehole as a bulk explosive

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 WA 6021

Telephone: +61 8 9022 3821

Emergency Telephone Number:

Emergency Number: 1800 884 289 (all hours)

SDS Date: July 2023

2. HAZARDS 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 Code for the Transport of Explosives by Road and Rail: DANGEROUS GOODS.

GHS Label Elements, Including Precautionary Statements:

Explosives – Division 1.1

Eye Damage / Irritation – Category 2A

Carcinogenicity - Category 2

Signal Word: Danger



Exploding Bomb



Exclamation Mark



Health Hazard

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Hazard Statement(s):

H201: Explosive; mass explosion hazard
 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.
 P234: Keep only in original packaging.
 P250: Do not subject to grinding/shock/friction.
 P264: Wash hands thoroughly after handling.
 P280: Wear face protection/protective clothing/eye protection.

Response:

P370+P372+P380+P373: In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
 P337+P313: If eye irritation persists: Get medical advice/attention.
 P308+P313: IF exposed or concerned: Get medical advice/attention.

Storage:

P401: Store in a well-ventilated magazine licensed for Class 1.1D Explosives in accordance with Australian Standard AS2187.1.
 P405: Store locked up.

Disposal:

P503: Refer to manufacturer/supplier for information on disposal/recovery/recycling.
 P501: Dispose of contents/container in accordance with national/regional/local regulations.

POISONS SCHEDULE (SUSMP): None allocated.

Other Hazards Which Do Not Result in Classification:

Harmful to aquatic life with long lasting effects.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS No	Proportion
Ammonium Nitrate	6484-52-2	>60%
Fuel, diesel	68334-30-5	0 - <10%
Mineral Oil	8012-95-1	0 - <10%
Ingredients determined not to be hazardous	Not applicable	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).

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- 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 Contact:** 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 Contact:** If contact with skin occurs, immediately remove any contaminated clothing and wash area thoroughly with soap and running water. If irritation develops, seek medical attention. Nitrates can be absorbed through cut, burnt or broken skin. Launder contaminated clothing before reuse.
- Ingestion:** Immediately rinse mouth with water and drink plenty of water afterwards. If swallowed, DO NOT induce vomiting. Seek medical advice. Never give anything by mouth to an unconscious person. For further advice, all the Poisons Information Centre on 131 126.

Most Important Symptoms/Effects, Acute and Delayed:

Symptoms: Contact may cause redness and tearing of the eyes.

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: Do NOT fight fires involving explosives. Evacuate the area immediately to a safe distance.

Unsuitable Extinguishing Media: Not applicable – DO NOT fight fires involving explosives.

Specific Hazards Arising from the Chemical:

Specific Hazards: Dangerous when exposed to heat or flames. Can support combustion of other materials involved in fire and is capable of undergoing detonation if heated to high temperatures especially under confinement (including being piled on itself in a burning fire).

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Hazards from Combustion Products: When heated to decomposition, highly toxic fumes may be emitted including oxides of carbon, oxides of nitrogen, ammonia and ammonium nitrate fumes.

Special Protective Actions for Fire Fighters:

Precautions and Special Protective Equipment: Try to keep fire from reaching explosives. In case of small fire where the actual explosive is not involved, carefully remove explosives to a safe distance, otherwise evacuate area immediately and allow to burn. DO NOT FIGHT EXPLOSIVE FIRES.

HAZCHEM CODE: E

6. ACCIDENTAL RELEASE MEASURES

Personal Precaution, 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. Shut off all possible ignition sources.

In the case of a transport accident notify the emergency services, Explosives Inspector and Nitro Sibir Australia.

For Emergency Personnel: Explosive material. Remove all sources of ignition. Wear chemical resistant gloves, protective clothing, 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: 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 for Cleaning Up: Clean up immediately with a non-combustible material eg. vermiculite or sand, to soak up the product. Using a clean shovel, collect material and place into properly labelled containers for later disposal. After cleaning, flush away traces with copious amounts of water and ensure contaminated equipment is thoroughly washed. Do not return spilled material to original packaging. 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 care. Only properly qualified and authorised personnel should handle and use explosives. Unintended detonation of explosives can cause serious injury or death. Use in designated areas with adequate ventilation. DO NOT subject the material to impact, friction between hard surfaces, or to any form of heating.

Avoid all contact with other chemicals. Keep containers closed when not in use. Wear appropriate personal protective equipment to prevent inhalation, skin and eye contact.

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General hygiene advice: Wash hands after use. Do not remove contaminated work clothing from the workplace. Do not get in eyes or on skin. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for Safe Storage, Including any Incompatibilities:

Conditions for safe storage: Store in a cool, dry, well-ventilated magazine licenced for Class 1.1D explosives. Do not store with other explosive products that have an incompatible explosives hazard classification eg. do not store detonators with blasting/high explosives. Keep storage area free of sources of shock, friction, heat, ignition and combustible materials. Inspect regularly for damage and spills. Protect from physical damage.

Reference should be made to AS2187.1- 1998 Explosives – Storage, transport and use – Part 1: Storage, and to all national and state regulations.

Storage incompatibilities: Store away from strong acids, strong alkalis, chlorates, chlorides, nitrites and permanganates. Ammonium nitrate is not compatible with bromates, chlorate, chlorite, hypochlorite, chloroisocyanurate, dichloroisocyanuric acid, trichloroisocyanuric acid, tetranitromethane and inorganic nitrites.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

Exposure Limits: No exposure value has been assigned to this material by Safe Work Australia.

For Decomposition Product:

As published in SafeWork Australia - Workplace Exposure Standards for Airborne Contaminants.

Nitrogen dioxide: 8hr TWA – 5.6mg/m³ (3ppm), 15min STEL – 9.4mg/m³ (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: All personnel should be removed to a safe location and protected from air blast and fly rock during blasting operations. The use of PPE should occur when other control measures have been found to be impracticable or when it's use is suitable in conjunction with one or more control measures. A formal risk assessment should be carried out to determine minimum PPE requirements.

Safety glasses with side shields, goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection should conform to Australian / New Zealand Standard AS/NZS 1337 – Eye Protectors for Industrial Applications.

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Wear gloves of impervious material (PVC or neoprene). Final choice of gloves will vary according to individual circumstances. Reference should be made to Australian / New Zealand Standard AS/NZS 2616.1: – Occupational protective gloves – Selection, use and maintenance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties and Safety Characteristics:

Physical State:	Translucent emulsion, possibly gassed, with or without blended ANFO component
Colour:	Slightly golden translucent emulsion
Odour:	Slight fuel oil
Melting/Freezing Point:	No data available
Boiling Point/Boiling Range:	No data available
Flammability:	No data available
Lower and Upper Explosion Limit:	No data available
Flash Point:	Not applicable
Auto-ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
pH:	Not applicable.
Kinematic Viscosity:	No data available
Solubility (water):	Negligible
Partition Coefficient:	Not applicable
Vapour Pressure:	Not applicable
Relative Density:	0.60 – 1.2 g/cm ³
Relative Vapour Density:	Not applicable
Particle Characteristics:	No data available
Explosive Properties:	Explosive: mass explosive hazard
Further Safety Characteristics:	No information available.

10. STABILITY AND REACTIVITY

Reactivity:

Explosive. Reacts with incompatible materials.

Chemical Stability:

Stable under normal conditions of storage and handling. Avoid shock, friction, heat, impact, electrostatic discharge and other sources of ignition. Detonation may occur from heavy impact or excessive heating, particularly under confinement

Possibility of Hazardous Reactions:

Hazardous polymerisation will not occur. A major fire may involve the risk of explosion. An adjacent detonation may also involve the risk of explosive. Heating can cause expansion or decomposition of the material which can lead to containers exploding.

Conditions to Avoid:

Avoid exposure to heat, sources of ignition, static electricity discharge, open flame, shock and friction. Avoid contact with other chemicals including strong acids, alkalis and oxidising agents.

Incompatible Materials:

Incompatible with strong acids, alkalis, combustible materials, permanganates and strong oxidising agents. Ammonium nitrate is a powerful oxidising agent and is incompatible with tetranitromethane, dichloroisocyanuric acid, trichloroisocyanuric acid, bromates, chlorates, chlorites, hypochlorites, perchlorates, permanganates, chloroisocyanurate, nitrites and powdered metals.

Hazardous Decomposition Products:

Thermal decomposition may result in the release of irritating and/or toxic fumes including ammonia and oxides of nitrogen and carbon. When mixed with strong acids, and occasionally during blasting, it produces an irritating toxic brown gas, mostly of nitrogen dioxide. When molten, may decompose violently due to shock or pressure.

11. TOXICOLOGICAL INFORMATION

General Advice:

No adverse health effects are 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 and overexposure occurs are detailed below:

Acute Toxicity:

There is no data for this product.

Information on Likely Routes of Exposure:

Skin corrosion / irritation:	Irritating to skin. Skin contact may cause redness, itching and irritation. Repeated or prolonged contact may cause dryness and cracking and may lead to irritant contact dermatitis.
Serious eye damage / irritation:	Exposure may cause irritation, tearing, stinging, blurred vision and redness.
Respiratory or skin sensitisation:	Exposure may cause irritation to the respiratory tract mucous membranes which may result in headaches, dizziness, drowsiness and nausea.
Germ cell mutagenicity:	This material is not classed as a mutagen.
Carcinogenicity:	There is no information available for this material. The International Agency for Research on Cancer (IARC) has classified the ingredient Fuel Oil (Diesel Fuel) as a Group 3 agent which is not classifiable as to its carcinogenicity to humans. In animal tests, Diesel Fuel has been shown to be carcinogenic and has caused in-vitro mutations.

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- Reproductive toxicity:** Not classified as a reproductive toxin.
- Specific target organ toxicity (STOT):** **Single exposure** – There is no available information for this material.
- Specific target organ toxicity (STOT):** **Repeated exposure** – There is no available information for this material.
- Aspiration hazard:** This material is not considered an aspiration hazard.

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 ecotoxicological effects, and therefore the classification of the mixture is based on the classification of the individual components.

The constituent Ammonium Nitrate was evaluated at 5, 10, 25 and 50mg (NH₄⁺)/L. The fertility of *Daphnia magna* was decreased at 50mg/L. Post embryonic growth of crustacean was impaired at 10, 25 and 50mg/L.

Persistence and Degradability:

There is no available information for this material.

Bioaccumulative Potential:

There is no available information for the product itself. Ammonium Nitrate has low potential for bioaccumulation (based on substance properties).

Mobility in soil:

There is no available information for this material.

13. DISPOSAL CONSIDERATIONS

Disposal methods:

Destruction of explosives must only be carried out by suitably qualified and licensed personnel. Disposal of material may be undertaken through a licensed waste contractor. If necessary, the relevant Statutory Authorities must be notified. In all circumstances, detonation is the preferred method of disposal. Small quantities of damaged or deteriorated explosives may be destroyed by inclusion in a blast hole containing good explosive material.

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.

If assistance is required regarding the disposal of waste product, please contact a Nitro Sibir Australia representative.

14. TRANSPORT CONSIDERATIONS

Road and Rail:

Classified as a Class 1 (Explosives) Dangerous Goods according to the Australian Code for the Transport of Explosives by Road and Rail.



UN Number: UN0241

Proper Shipping Name: EXPLOSIVE, BLASTING, TYPE E

Transport Hazard Class: 1.1D

Packing Group: None assigned

Hazchem Code: E

Sea Transport:

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for Transport by Sea



UN Number: UN0241

Proper Shipping Name: EXPLOSIVE, BLASTING, TYPE E

Transport Hazard Class: 1.1D

Packing Group: None assigned

Air transport:

Transport by air is prohibited under the International Air Transport Association (IATA) Dangerous Goods Regulations for Transport by Air.

Environmental hazards:

Not a known marine pollutant.

IMDG EMS Fire:

F-B

IMDG EMS Spill:

S-X

Special precautions for user:

In the event of a transport emergency, treat as an explosive, Class 1.1D, with mass explosion hazard. Refer to Section 6 of this SDS.

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 of Practice 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 components of this material are listed on the Australian Inventory of Chemical Substances (AICS), or are exempt.

International Agreements:

This product is not subject to the Montreal Protocol on Substances that Deplete the Ozone Layer.

This product is not subject to the Stockholm Convention on Persistent Organic Pollutants.

This product is not subject to the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

16. OTHER INFORMATION

Revision Date:	July, 2023
Reason(s) for Issue:	Minor formatting changes
Abbreviations used:	<p>CAS No Chemical Abstract Service number (chemical unique identifier)</p> <p>EMS Emergency Schedules (procedures for ships carrying dangerous goods)</p> <p>g/cm³ grams per cubic centimetre</p> <p>GHS Globally Harmonised System of Classification and Labelling of Chemicals</p> <p>GTEPG Group Text Emergency Procedure Guide</p> <p>IARC International Agency for Research on Cancer</p> <p>LD50 Lethal Dose, 50%</p> <p>pH Scale of acidity from 0 (acidic) to 14 (alkaline), pH 7 is neutral</p> <p>PPE Personal Protective Equipment</p> <p>Ppm Parts per million</p> <p>mg/m³ Milligrams per cubic metre</p> <p>STEL Short-term Exposure Limit</p> <p>STOT Specific Target Organ Toxicity</p> <p>SUSMP Standard for the Uniform Scheduling of Medicines and Poisons</p> <p>TWA Time Weighted Average</p>
Key Literature References and Sources of Data:	<p>Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)</p> <p>Globally Harmonized System of Classification and Labelling of Chemicals (GHS)</p>



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Hazardous Chemical Information System: SafeWork Australia

National Drugs & Poisons Schedule Committee (NDPSC): Standard for the Uniform Scheduling of Medicines and Poisons

National Institute for Occupational Safety and Health

Preparation of Safety Data Sheets for Hazardous Chemicals: SafeWork Australia

Workplace Exposure Standards for Airborne Contaminants: SafeWork Australia

The information contained in this SDS is believed to be accurate and has been obtained from sources considered reliable. Users of this information should make their own investigations to determine the suitability of the information for their particular use or situation. NITRO SIBIR AUSTRALIA does not in any way warrant or imply the applicability, viability or use of this information to any person, for use in any situation.

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