

**SAFETY DATA SHEET**

# ANFO PESADO (HEAVY ANFO); ANFO PESADO ÁRTICO (ARCTIC HEAVY ANFO)

**Section 1: Product Identification**

Product Trade Name:	HEAVY ANFO
Generic Name by SUCAMEC:	HEAVY ANFO
Recommended Use and Restrictions:	<p>HEAVY ANFO and ARCTIC HEAVY ANFO are high-energy blasting agents with sensitizing components that allow a high detonation velocity and detonation pressure. It supports high hydrostatic pressures and generates a high volume and pressure of gases.</p> <p>The handling temperature range of the HEAVY ANFO is from 5°C to 30°C and of the ARCTIC HEAVY ANFO is from -20°C to 5°C.</p>

**Provider Information**

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**Section 2: Hazards Identification**
**Substance or Mixture GHS Classification**

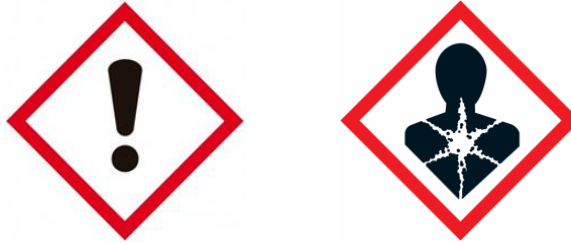
Blasting explosive, type E

UN Number 0332

Class or Division 1.5D

Description		Hazard Identification
Physical Hazards	Explosives 1.5	H205 Risk of mass explosion in case of fire.
Health Hazards	Acute Ingestion Toxicity, Cat. 4	H302 Toxic if swallowed.
	Skin irritation, Cat. 3	H316 Causes mild skin irritation.
	Eye irritation, Cat. 2B	H320 Causes eye irritation.
	Respiratory sensitization, Cat. 2B	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	Specific Target Organ Toxicity, Cat. 2	H373 May cause damage to organs through prolonged or repeated exposure.
Environmental Risks	Short-term hazard to the aquatic environment, Cat. 2.	H401 Toxic to aquatic life.

**Signal Word:** Danger, Caution.

**GHS Label Element**

**Cautionary Advice**
**In terms of prevention**

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Do not smoke.
P240	Grounding and equipotential bonding of the vessel and the receiving equipment.
P250	Avoid abrasion, shock and friction.
P261	Do not breathe gases produced by combustion.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Do not release into the environment.
P280	Wear gloves, protective clothing, safety glasses, ear protection.

**In the event of interference**

P330	Rinse mouth.
P301 + P317	IF SWALLOWED: seek medical attention.
P332 + P317	In case of skin irritation: seek medical advice.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342 + P316	In case of respiratory symptoms: seek immediate emergency medical help.
P305 + P351 + P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P337 + P317	If eye irritation persists: Get medical advice.
P370 + P372 + P380 + P373	In case of fire: Risk of explosion. Evacuate area. DO NOT fight fire when fire reaches explosives.

**For storage**

P401	Store according to local regulations.
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**For disposal**

P501	Dispose of contents in accordance with local regulations.
P503	Ask the manufacturer for information on disposal.

**Other hazards**

No information is available.

**Section 3: Composition / Information of components**

Chemical Identity	Common Name	CAS Number	Concentration
Ammonium Nitrate	Not Applicable	6484-52-2	40 - 90%
Sodium Nitrate	Not Applicable	7631-99-4	< 5%
Petroleum	Not Applicable	64741-59-9	< 8%
Emulsifier	Not Applicable	67762-77-0	< 3%
Urea	Not Applicable	57-13-6	< 10%
Microspheres	Not Applicable	65997-17-3	< 5%

**Section 4: First Aid Measures**

**Inhalation:** If combustion gases are inhaled, move the injured person to a fresh and ventilated place. Get medical attention.

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**Skin Contact:** Wash immediately with soap and water. If irritation, redness or burning sensation exists and persists, seek medical attention.

**Eye Contact:** If the product gets into eyes accidentally, carefully hold eyelids open and flush with low pressure water for at least 15 minutes. Get medical attention.

**Ingestion:** In the event that the contents of the product are swallowed, DO NOT INDUCE VOMITING. Rinse mouth. Seek medical attention immediately.

**Most important symptoms / effects:** Abdominal pain, nausea, vomiting, motor weakness, anemia.

**Most acute symptoms / effects:** Hypertension, abdominal pain, nausea, vomiting.

**Delayed symptoms / effects:** Abdominal cramps, anemia, anxiety, insomnia, motor weakness. Seek medical attention if they occur.

**Immediate indications and special treatment:** No information is available.

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## Section 5: Fire-fighting measures

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**Suitable extinguishing media:** Do not fight fire. Evacuate area immediately, prevent access, do not breathe fumes from fire.

**Specific hazards of the chemical:** Heat under confined and/or special conditions may cause violent reaction or explosion. May detonate when subjected to fire or under severe impact. Risk of mass explosion in case of fire.

**Special protective equipment and special precautions for fire-fighting equipment:** Evacuate area in all directions 1.6 km or more. Allow fire to burn out. Do not allow personnel to pass. Clear area.

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## Section 6: Measures to be taken in case of accidental release

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**Personal Precautions:** Only trained and authorized personnel must take actions in emergency situations.

**Personal Protective Equipment:** Gloves, safety glasses with side protection, work clothes, safety shoes.

### Emergency Procedures:

- Restrict access to the spill area.
- Remove sources of heat and ignition.
- Do not allow access to unauthorized personnel.
- Minimize the number of people in the risk area.
- All equipment used in handling the spill should be grounded.
- Use non-sparking equipment and tools when handling the material.
- Do not touch or walk over spilled material.

**Environmental precautions:** Take precautions to prevent contamination of streams and drains.

**Methods and materials for isolation and cleaning up:** Spilled material should be placed in properly identified containers, do not use metal objects or any tools that may produce sparks. Place the product in marked containers. Decontaminate the spill area. Dispose of the material under supervision of qualified personnel.

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## Section 7: Handling and Storage

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### Precautions for Safe Handling

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**Operational and Technical Measures to avoid exposure:** This product should be handled by qualified and authorized personnel in the use of the explosive. The handling temperature range of the HEAVY ANFO is from 5°C to 30°C and of the ARCTIC HEAVY ANFO is from 20°C to 5°C.

**Other precautions:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again before leaving work.

### Storage Conditions

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**Conditions for Safe Storage:** It will be stored only with compatible products. The ammunition dump designed for storage shall comply with all the requirements established by current regulation. The warehouse must be a dry, fresh, clean, and ventilated area with electrical

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connection to the earth. Must be stored in magazines at temperatures between 5°C and 30°C for HEAVY ANFO and between -15°C and 10°C for ARCTIC HEAVY ANFO.

**Incompatible Substances and Mixtures:** Do not store together with corrosive chemicals, volatile, combustible, strong acids, strong bases, alkalis or metallic elements.

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## Section 8: Exposure control / personal protection

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### Control parameters

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No value is recorded for this specific material; however, exposure limits are described, according to international standards, for particulate matter and decomposition products:

Product name: AMMONIUM NITRATE, SODIUM NITRATE.

Dusts not otherwise classified: 8hr TWA = 10 mg/m<sup>3</sup>

Nitrogen dioxide: 8hr TWA = 5.6 mg/m<sup>3</sup> (3 ppm), 15 min STEL=9.4 mg/m<sup>3</sup> (5 ppm)

Mineral oils: 8hr TWA = 5 mg/m

### Appropriate engineering controls

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Apply engineering measures to comply with occupational exposure limits. Eye drop stations. Ventilation system.

If safe exposure levels could be exceeded in the handling and application of this material, engineering controls such as local exhaust ventilation should be considered. If safe exposure levels are achieved, engineering controls are not required, following a detailed and documented risk assessment.

### Personal Protective Equipment (PPE)

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**Eye Protection:** Safety glasses fitted to the contour of the face that meet ANSI/ISEA Z87.1-2015 requirement.

**Skin and Body Protection:** Safety clothing and footwear should be appropriate according to current regulations, e.g. cotton uniform to avoid static charge build-up.

**Respiratory Protection:** Wear protection that complies with OSHA 29 CFR. 1910.134 and ANSI Z88.2 or European Standard EN 149.

**Thermal Hazards:** Not applicable.

**Hand Protection:** The use of protective gloves made of impermeable material with chemical resistance is recommended. They may be made of nitrile or better, complying with the UNE-EN-420:2004 standard.

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## Section 9: Physical and chemical properties

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**Physical State:** Pasty Mass

**Color:** Beige.

**Odor:** Odorless.

**Melting Point / Freezing Point:** No information is available.

**Boiling point or initial boiling point and boiling range:** No information is available.

**Flammability:** No information is available.

**Lower and upper explosion limit / flammability limit:** No information is available.

**Flash Point:** Not applicable.

**Autoignition Temperature:** No information is available.

**Decomposition Temperature:** No information is available.

**pH:** No information is available.

**Kinematic Viscosity:** No information is available.

**Solubility:** Insoluble.

**Partition coefficient n-octanol/water (logarithmic value):** No information is available.

**Vapor Pressure:** No information is available.

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**Relative density:** Heavy Anfo: 1.23 g/mL ± 5%.

Arctic Heavy Anfo: 1.20 g/mL ± 5%.

**Vapor relative density (air=1):** No information is available.

**Particle Characteristics:** No information is available.

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## Section 10: Stability and Reactivity

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**Reactivity:** Explosive

**Chemical Stability:** Product is stable at normal recommended environmental conditions of storage and handling. Risk of explosion due to energy, shock, fire or other sources of ignition. Capable of detonation, explosive decomposition or explosive reaction, but requires a strong source of initiation or must be heated in confinement.

**Possibility of Hazardous Reactions:** A major fire may involve an explosion hazard. An adjacent detonation may also involve an explosion hazard. A massive explosion can occur due to shock, friction, fire or other ignition sources. Explosion creates the projection of shrapnel.

**Conditions to Avoid:** Do not expose to high temperatures, fire, impact, friction, electric current and electrostatic discharges.

**Incompatible Materials:** Incompatible with acids, strong bases and alkalis. Incompatible with metallic elements.

**Hazardous Decomposition Products:** Ammonia (NH<sub>3</sub>), Oxides of nitrogen (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>). 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, it produces an irritating toxic brown gas, mainly nitrogen dioxide. When molten it can decompose violently.

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## Section 11: Toxicological Information

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**Acute Toxicity (DL 50, CL 50):** No information is available.

**Corrosion / Irritation:** Prolonged and repetitive contact may cause irritation to the skin.

**Serious Eye Damage/Eye Irritation:** None under normal handling conditions.

**Respiratory or skin sensitization:** None under normal handling conditions. Do not breath gases produced by combustion.

**Germ Cell Mutagenicity:** No information is available.

**Carcinogenicity:** No information is available.

**Reproductive Toxicity:** No information is available.

**Specific Target Organ Systemic Toxicity – Single Exposure:** No information is available.

**Specific Target Organ Systemic Toxicity – Repeated Exposures:** One of its components can damage certain organs.

**Aspiration Hazard:** None under normal handling conditions.

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## Section 12: Ecotoxicological Information

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**Ecotoxicity:** Avoid contact with waterways and soils.

**Persistence and Degradability:** No information is available.

**Bioaccumulative Potential:** No information is available.

**Soil Mobility:** No information is available.

**Other adverse effects:** Avoid spillage on soils, plants and over any water source.

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## Section 13: Information regarding the disposal of products



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**Recommended and approved methods for safe disposal:** Collect the material and dissolve in a container with water and industrial detergent, mix with sawdust and dispose of as industrial waste.

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**Recommended and approved methods for disposal of contaminated containers/packaging:** Local regulations should be complied with. If product becomes waste should review disposal requirements with a specialist of applicable Environmental law before disposing of any explosive material.

## Section 14: Transport Information

Mode of transport applied	Road	Sea	Air
National and international regulations	SUCAMEC / Law 28256	IMO / IMDG	IATA / DGR
UN Number	0332	0332	0332
Proper UN Shipping Name	Blasting explosive, type E	Blasting explosive, type E	Forbidden
Transport classification	1.5D	1.5D	Forbidden
Label			Forbidden
Packaging group	II	II	Forbidden
Environmental hazards	No information is available	No information is available	Not Applicable
Bulk transport according with IMO instruments	Not Applicable	No information is available	Not Applicable

## Section 15: Regulatory Information

### National Regulations

- Regulation on the Control of Explosives for Civil Use - Peru (SUCAMEC)
- Law No. 28256: "Law regulating the Land Transportation of Hazardous Materials and Hazardous Wastes".

### International Regulations

- Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations, 8th version.
- International Maritime Dangerous Goods Code (IMDG Code), IMO, 2018 edition.
- Dangerous Goods Regulations (DGR), IATA, Issue 62.

## Section 16: Other Information

This safety data sheet has been prepared by professionals from the areas of Industrial Safety, Environment, Quality Control, Research and Development and the Occupational Physician of Famesa Explosivos.

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Revision: Annual

### Abbreviations and Acronyms

DL50 – Lethal dose for 50% of the population tested.

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CL50 – Lethal concentration for 50% of the population tested.

UN - United Nations Organization.

BOD - Biochemical Oxygen Demand.

TWA - Time Weighted Average Concentration.

CAS - Chemical Abstracts Service.

PBT - Persistent, Bioaccumulative and Toxic Substances.

vPvB - Very Persistent and Very Bioaccumulative Substances.

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#### **Disclaimer of Liability**

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Famesa Explosivos S.A.C., hereinafter Famesa, has prepared this safety data sheet based on our extensive knowledge at the date of issue, on chemical health hazards, material safety and general guidance on how to handle the material safely in the workplace. Since Famesa cannot anticipate or control the conditions of use of the product, each user must, prior to handling, evaluate and control the risks of the product.

If you need clarification and/or further information, please contact FAMESA EXPLOSIVOS S.A.C. through our telephone and/or mail indicated in section 1 of this document.