SAFETY DATA SHEET

PYROSAN-G

Section 1: Product Identification

Product Trade Name:	PYROSAN-G / PYROSAN-G 10U
Generic Name by SUCAMEC:	NON-SENSITIZED BULK EMULSION OR HYDROGEL
Recommended Use and Restrictions:	PYROSAN-G / PYROSAN-G 10U are bulk emulsions of the water-in-oil type, with ammonium nitrate and mineral reaction inhibitor components that contain pyrite in their composition, being possible to apply it in soils with temperatures from -5°C to 100°C.
Provider Information	
Name:	FAMESA EXPLOSIVOS S.A.C.
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City / Country:	Lima / Peru
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Section 2: Hazards Identification

Substance or Mixture GHS Classification

Ammonium nitrate emulsion

UN Number 3375

Class or Division 5.1

Description		Hazard Identification
Physical Hazards	Oxidizing liquid, Cat. 2	H272 May intensify fire: OXIDISER
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.
	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.
P220	Keep away from clothing and other combustible materials.
P260	Do not breathe vapors.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear gloves, protective clothing, safety glasses, ear protection.
In the event of interference	
P319	Seek medical advice if the person is unwell.
P330	Rinse mouth.
P301 + P317	IF SWALLOWED: Get medical attention.
P332 + P317	In case of skin irritation seek medical advice.
P337 + P317	If eye irritation persists, get medical advice.
P370 + P378	In case of fire, use appropriate extinguishing media.
P305 + P351 + P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
For storage	
P401	Store in accordance with local and manufacturer's regulations.
For disposal	
P501	Dispose of contents in accordance with local regulations.

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	45.0– 90.0%
Sodium Nitrate	Not Applicable	7631-99-4	2.0–9.0%
Urea	Not Applicable	57-13-6	0.0 – 10.0%
Petroleum	Not Applicable	68476-30-2	4.0–8.0%
Oil	Not Applicable	Not Applicable	0.0–10.0%
Emulsifiers	Not Applicable	Not Applicable	0.0–3.0%

Section 4: First Aid Measures

Inhalation: If symptoms occur, get fresh air and ventilate the suspected area. Seek medical attention.

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

Eye Contact: Wash immediately with plenty of water for at least 15 minutes holding eyelids up. If irritation occurs, repeat rinsing and seek medical attention.

Ingestion: In the event that the product is swallowed, rinse mouth and get medical attention.

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.

Section 5: Fire-fighting measures

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

Specific hazards of the chemical: If combustion exists alone or in conjunction with other materials, toxic fumes may be produced, avoid inhalation of fumes generated by fire.

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

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

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.

Section 7: Handling and Storage

Precautions for Safe Handling

Operational and Technical Measures to avoid exposure: This product must be handled by qualified and authorized personnel in the use of this product. PYROSAN-G / PYROSAN-G 10U are designed to work in soils with temperatures between -5°C and 100°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

Conditions for Safe Storage: It will be stored only with compatible products. The place or silo destined for storage must comply with all the requirements established by the regulations in force. It must be stored at temperatures between 5°C and 30°C, located in safe, well ventilated, dry areas, protected from rain and heat.

Incompatible Substances and Mixtures: Do not store with corrosive, volatile, combustible, acid and base chemical substances, or metallic elements.

Section 8: Exposure control / personal protection

Control parameters

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^3

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

Mineral oils: 8hr TWA = 5 mg/m^3

Appropriate engineering controls

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 using personnel.

Personal Protective Equipment (PPE)

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.

Section 9: Physical and chemical properties

Physical State: Pasty Mass

Color: Red

Odor: Fuel.

Melting Point / Freezing Point: Not applicable.

Boiling point or initial boiling point and boiling range: Not applicable.

Flammability: Flammable product.

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

Flash Point: No information is available.

Autoignition Temperature: No information is available.

Decomposition Temperature: No information is available.

pH: 6

Kinematic Viscosity: No information is available.

Solubility: Insoluble in water.

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

Vapor Pressure: No information is available.

Density (g/cm^3): 1,35 ± 3%

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

Particle Characteristics: No information is available.

Section 10: Stability and Reactivity

Reactivity: May cause or intensify fire. May accelerate the burning of other combustible materials.

Chemical Stability: Stable under normal conditions of recommended temperature and use. May combust when subjected to direct fire.

Possibility of Hazardous Reactions: None, provided that recommended handling, transport, storage and usage requirements are met.

Conditions to Avoid: Heat. Keep away from open flames, hot surfaces and sources of ignition. Avoid contact with other chemicals. Avoid contact with flammable substances.

Incompatible Materials: Incompatible with strong acids and bases, fuels, nitrites, reducing agents.

Hazardous Decomposition Products: Ammonia (NH_3), Oxides of nitrogen (NO_x), Carbon monoxide (CO), Carbon dioxide (CO_2). 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.

Section 11: Toxicological Information

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

Corrosion / Irritation: None under normal handling conditions. In some cases, prolonged contact with the mass may cause mild skin irritation.

Serious Eye Damage/Eye Irritation: May cause eye irritation.

Respiratory or skin sensitization: May cause respiratory sensitization.

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: No information is available.

Aspiration Hazard: No information is available.

Section 12: Ecotoxicological Information

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.

Section 13: Information regarding the disposal of products

Recommended and approved methods for safe disposal: Collect material and dissolve in container with water and de-emulsifying agent, dispose as industrial waste.

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	3375	3375	3375
Proper UN Shipping Name	Ammonium nitrate emulsion	Ammonium nitrate emulsion	Forbidden
Transport classification	5.1	5.1	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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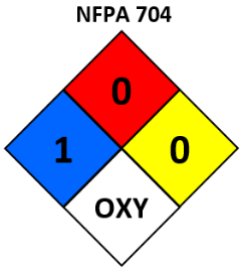

Abbreviations and Acronyms

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

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.

Disclaimer of Liability

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.