

SAFETY DATA SHEET

CORDÓN DETONANTE (DETONATING CORD)

Section 1: Product Identification

Product Trade Name:	DETONATING CORD 3P, DETONATING CORD 3PE, DETONATING CORD 5P, DETONATING CORD 5PE, DETONATING CORD 8P, DETONATING CORD 8PE, DETONATING CORD 10, DETONATING CORD 10PE and DETONATING CORD 10 PE ACP.
Generic Name by SUCAMEC:	CORDÓN DETONANTE (DETONATING CORD)
Recommended Use and Restrictions:	The Detonating Cord is a blasting accessory, and consists of a core of penthrite (PETN), which is covered with synthetic fibers and protected with a plastic material. For reinforced Cords, waxed threads and resins are additionally used to give the product increased abrasion resistance and tensile strength. Its handling temperature ranges from 0°C to 40°C.

Provider Information

Name:	FAMESA EXPLOSIVOS S.A.C.
Address:	Km 28 Autopista Ancón - Puente Piedra
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Email address:	famesa@famesa.com.pe
Emergency Telephone Number:	(+51 1) 613-9800 Extension 100
Office hours:	M-F from 08:00 to 17:00 hours

Section 2: Hazards Identification
Substance or Mixture GHS Classification

Flexible detonating cord
UN Number 0065
Class or Division 1.1D

Description		Hazard Identification
Physical Hazards	Explosives 1.1D	H201 Explosive; danger of mass explosion.
Health Hazards	Acute Inhalation Toxicity, Cat. 5	H333 May be harmful if inhaled.
	Serious Eye Damage/Eye Irritation, Cat. 2B	H320 Causes eye irritation.
	Acute Ingestion Toxicity, Cat. 5	H303 May be harmful if swallowed.
Environmental Risks	Specific Target Organ Systemic Toxicity, Cat 2	H371 May cause damage to organs.
	No information is available.	No information is available.

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.
P234	Keep only in original packaging.
P240	Grounding and equipotential bonding of the vessel and the receiving equipment.
P250	Avoid abrasion, shock and friction.
P261	Avoid breathing dust/fume/gas.
P264	Wash hands and face thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves, protective clothing, eye protection.

In the event of interference

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.
P301 + P340 + P317	IF SWALLOWED: Get medical attention.
P304 + P317	IF INHALED: Move the personnel outdoors and keep them in a position that facilitates breathing. Get medical attention.
P308 + 316	In case of proven or suspected exposure: Get immediate medical attention.

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
Pentaerythritol Tetranitrate	Penthrite	78-11-5	100%

Section 4: First Aid Measures

Inhalation: Provide fresh air. In case of respiratory tract disease, consult a physician.

Skin Contact: Wash with plenty of soap and water. Remove contaminated clothing immediately.

Eye Contact: Wash immediately with plenty of water for 10 to 15 minutes and consult a physician. If person wears contact lenses, remove and proceed with flushing.

Ingestion: Rinse mouth. Give plenty of water to drink, do not induce vomiting and seek medical help quickly.

Most important symptoms/effects: low blood pressure, vomiting, diarrhea, headache, drowsiness, dizziness.

More acute symptoms / effects: irritation, methemoglobin, dyspnea, cyanosis.

Delayed symptoms / effects: Methemoglobin, dyspnea, cyanosis.

Immediate indications and special treatment: Treat symptomatically.

Section 5: Fire-fighting measures

Suitable extinguishing media: Do not attempt to fight the fire when explosive material is involved, evacuate the affected area immediately and avoid breathing toxic fumes. Water can be applied by spraying and without the presence of people.

Specific hazards of the chemical: Heat, fire, impact, friction, electric currents and electrostatic discharges can cause a violent reaction or explosion. Risk of mass explosion in case of fire.

Special protective equipment and special precautions for firefighting equipment: Evacuate area in all directions 800 m or more. Clear the area and evacuate personnel to a safe place. To control the fire before explosives intervene, personnel should wear positive pressure self-contained breathing apparatus (SCBA) and full protective equipment. Only personnel trained in emergency situations must take action.

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

Personal Precautions: Verify fire and explosion risks, take regular safety precautions. Only trained and authorized personnel must take actions in emergency situations. Keep explosive material away from sources of ignition, heat, sparks, open flames, hot surfaces.

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

Emergency Procedures:

- Restrict access to the spill area.
- Evacuate the surrounding area.
- Do not allow unnecessary and unprotected personnel to enter.
- Do not touch or walk over spilled material.
- Shut off all sources of ignition.
- Do not use flares, smoke or flames in the risk area.
- Provide adequate ventilation.

Environmental precautions: Environmental exposure is unlikely to occur, but in case of spillage, entry into sewers and public waters should be avoided. The product must be moistened with water, collected using a tray and a non-sparking shovel. Do not use open flame near the spill site.

Methods and materials for isolation and cleaning up: First ensure that there are no sources of ignition, then carefully collect the material and place it in suitable containers using non-sparking tools, as long as it is not broken or bruised. In case the product is damaged or broken, please contact Famesa Explosivos' emergency telephone number. Be careful not to hit, cut or damage the product. The appropriate authorities should be notified.

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. Carefully handle the product, considering that the Detonating Cords are sensitive, under certain conditions, to blow, friction, sparks and fire. Under no circumstances should you attempt to disassemble, cut or remove the product content. For cutting, do not use serrated elements (saw blade or knife with teeth) or shears; use well sharpened flat-edged elements on a suitable surface (not metallic or with metallic elements, nor on stones), preferably lined with rubber or other material that avoids sparks and according to the established procedure (a single cutting pass). The handling temperature of the Detonating Cord ranges from 0°C to 40°C.

Other precautions: It is forbidden to eat, drink or smoke in places where this product is handled, stored or treated.

Storage Conditions

Conditions for Safe Storage: It will be stored only with compatible products, according to local and state regulations. It should be stored in powder magazines at temperatures between 0°C to 30°C, located in safe, well ventilated, dry areas, protected from heat. This powder magazine must comply with all the requirements established by current regulations and must be electrically grounded.

Incompatible substances and mixtures: keep away from incompatible materials, combustible substances, oxidizing agents, reducing agents, acids and alkalis.

Section 8: Exposure control / personal protection

Control parameters

No information is available.

Appropriate engineering controls

Ventilation system, not in direct contact with sunlight. Emergency eyewash fountains and safety showers should also be available in the vicinity of any potential exposure. Proper grounding procedures must be followed to avoid static electricity.

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: Clothing should be appropriate according to current regulations, e.g. cotton uniform to avoid accumulation of static charges; antistatic safety shoes.

Respiratory Protection: None, under normal handling conditions.

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: Solid.

Color: Not applicable.

Odor: Odorless.

Melting Point / Freezing Point: The explosive core of Pentaerythritol Tetranitrate melts at 140°C.

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

Flammability: Not flammable.

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

Flash Point: No information is available.

Autoignition Temperature: Greater than 190°C (PETN)

Decomposition Temperature: Greater than 140°C (PETN)

pH: Not applicable.

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.

Relative density: 1.77g/cm³ to 20°C (PETN).

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

Particle Characteristics: Not applicable.

Section 10: Stability and Reactivity

Reactivity: Explosive

Chemical Stability: The product is stable under normal storage and handling conditions.

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: Alkaline, acidic, organic, and combustible substances, as well as reducing agents

Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be formed.

Section 11: Toxicological Information

Acute Toxicity (DL 50, CL 50): Pentaerythrite tetranitrate (1 660 mg/kg, no information).

Corrosion / Irritation: No information is available.

Serious Eye Damage/Eye Irritation: May cause irritation.

Respiratory or skin sensitization: No information is available.

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 No information is available.

Persistence and Degradability: No information is available.

Bioaccumulative Potential: No information is available.

Soil Mobility: No information is available.

Other adverse effects: No information is available.



Section 13: Information regarding the disposal of products

Recommended and approved methods for safe disposal: All waste must be handled according to national regulations. Small quantities or deteriorated explosives can be destroyed by placing them in an auger containing a good explosive. For large quantities of damaged or deteriorated explosives, please notify Famesa Explosivos S.A.C.

Recommended and approved methods for disposal of contaminated containers/packaging: Burn under controlled conditions while strictly following national procedures.

Section 14: Transport Information

Mode of transport applied	Road	Sea	Air
National and international regulations	SUCAMEC / Law 28256	IMO / IMDG	IATA / DGR
UN Number	0065	0065	0065
Proper UN Shipping Name	Flexible detonating cord	Flexible detonating cord	Forbidden
Transport classification	1.1D	1.1D	Forbidden

Label			Forbidden
Packaging group	II	II	Forbidden
Environmental hazards	No information is available	No information is available	No information is available
Bulk transport according with IMO instruments	Not Applicable	Not Applicable	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.

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

UN - United Nations Organization.

CAS - Chemical Abstracts Service.

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.