

SAFETY DATA SHEET

CARMEX

Section 1: Product Identification

Product Trade Name:	CARMEX (with connector); CARMEX (without connector); CARMEX ZW; CARMEX AB; CARMEX INITIATOR FOR DETONATING CORD
Generic Name by SUCAMEC:	ASSEMBLED DETONATOR
Recommended Use and Restrictions:	CARMEX has been conceived and developed as a safe and efficient initiation system for conventional blasting. Its handling temperature range is from 5°C to 35°C.

Provider Information

Name:	FAMESA EXPLOSIVOS S.A.C.
Address:	Km 28 Autopista Ancón - Puente Piedra
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Emergency Telephone Number:	(+51 1) 613-9800 Extension 100
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Section 2: Hazards Identification
Substance or Mixture GHS Classification

Detonator assembly, non-electrical for blasting UN Number 0360 Class or Division 1.1B	Non-electric detonator sets for blasting UN Number 0500 Class or Division 1.4S
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Description		Hazard Identification
Physical Hazards	Explosives 1.1 Explosives 1.4	H201 Explosive: mass explosion hazard H204 Fire or projection hazard
Health Hazards	Acute Ingestion Toxicity, Cat. 3 Skin irritation, Cat. 3 Eye irritation, Cat. 2B Respiratory sensitization, Cat. 2B	H301 Toxic if swallowed. H316 Causes mild skin irritation. H320 Causes eye irritation. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Environmental Risks	Short-term hazard (acute) to the aquatic environment, Cat. Acute 1	H400 Very toxic to aquatic life.

Signal Word: Hazard.

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	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	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

In the event of interference

P301 + P316	IF SWALLOWED: seek immediate emergency medical attention.
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.
P332 + P317	In case of skin irritation: seek medical advice.
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 it reaches the charge, except for explosives of Division 1.4 (Compatibility Group S) in the transport packaging.
P391	Collect spillage.

For storage

P401	Store according to local regulations.
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For disposal

P501	Dispose of contents and container in accordance with local regulations.
P503	Ask the manufacturer or supplier for information on disposal, recovery and recycling.

Other hazards

No information is available.

Section 3: Composition / Information of components

Chemical Identity	Common Name	CAS Number	Concentration
Pentaerythrite tetranitrate (PETN)	Not Applicable	78-11-5	< 20%
Lead Azide	Not Applicable	13424-46-9	< 10%
Potassium nitrate	Not Applicable	7757-79-1	< 60%
Carbon	Not Applicable	1333-86-4	< 30%
Sulfur	Not Applicable	7704-34-9	< 30%

Section 4: First Aid Measures

Inhalation: If detonation fumes are inhaled, remove or move the affected person to fresh air. If breathing stops, give artificial respiration and seek medical attention.

Skin Contact: If necessary, wash the skin with plenty of water and soap.

Eye Contact: Wash off immediately with plenty of clean water. If irritation persists seek medical attention.

Ingestion: In case of accidental ingestion rinse mouth with water, if swallowed give water to drink, do not induce vomiting, seek medical attention.

Most important symptoms / effects: No information is available.

Most acute symptoms / effects: No information is available.

Delayed symptoms / effects: No information is available.

Immediate indications and special treatment: No information is available.

Section 5: Fire-fighting measures

Suitable extinguishing media: Do not extinguish fire.

Specific hazards of the chemical: Explosion may occur, burning material may produce toxic gases.

Special protective equipment and special precautions for firefighting equipment: If the material is on fire, do not try to extinguish it, explosion may occur. Clear the area and evacuate personnel to a safe place.

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

Personal Precautions: Take any ignition source (flame, heat, spark, etc.) away from the place. Do not smoke and ventilate the area. Damaged material may be particularly sensitive.

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: Carefully collect all material in a safe and suitable location, avoid release of product into rivers, lakes, tributaries, etc. Do not allow fire near the spill site.

Methods and materials for isolation and cleaning up: Collect using non-sparking tools. Do not use metallic tools. Place the material in a safe and proper place. If the product is damaged and/or broken, contact Famesa Explosivos SAC through its emergency telephone.

Section 7: Handling and Storage

Precautions for Safe Handling

Operational and Technical Measures to avoid exposure: This product should be handled by qualified and authorized personnel in the use of the explosive. Handle the product carefully, considering that detonation devices are sensitive, under certain conditions, to blow, friction, spark and fire. Its handling temperature range is from 5°C up to 35°C.

Other precautions: Under no circumstances should you attempt to disassemble, cut or remove the product content. Keep away from direct heat sources above 65°C.

Storage Conditions

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 ammunition dump must be permanently inspected by authorized personnel. CARMEX should be stored in magazines at temperatures between 0°C and 30°C, located in safe, well ventilated, dry areas, protected from rain and heat. Also, the explosive inventory should be rotated, avoiding the use of new materials before using old ones. And it must be stored according to the current compatibility table of the relevant authority.

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

Not applicable.

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: None under normal handling conditions in well ventilated areas. Avoid breathing gases produced by detonation. If natural ventilation is limited forced ventilation may be necessary.

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. Gunpowder wrapped in a plastic cover with a connector at one end and a No. 8 detonator at the other end. Additional in the connector it has a fastening block.

Color: Green or white.

Odor: No odor.

Melting Point / Freezing Point: Detonator charge, Pentaerythrite Tetranitrate melts at 140° C / 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: No information is available.

Kinematic Viscosity: No information is available.

Solubility: Not applicable.

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

Vapor Pressure: No information is available.

Relative density: Not applicable.

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

Particle Characteristics: No information is available.

Section 10: Stability and Reactivity

Reactivity: Explosive

Chemical Stability: CARMEX stable under normal handling conditions. There is no risk of spontaneous detonation, provided that handling, transport and storage requirements established by regulations are met.

Possibility of Hazardous Reactions: None.

Conditions to Avoid: Avoid flame, impact of any blunt body, friction, electrostatic discharge, etc. Keep away from any direct heat source greater than 65°C.

Incompatible Materials: Corrosive, volatile, combustible, acid and base chemical substances.

Hazardous Decomposition Products: None, provided that recommended handling, transport, storage and usage requirements are met. If involved in a fire, generated gases may contain lead dust, carbon monoxide and nitrogen oxides. The exposure to fire may cause a detonation along with a rain of splinters.

Section 11: Toxicological Information

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

Corrosion / Irritation: None under normal handling conditions. Contact with product components may cause irritation.

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

Respiratory or Skin Sensitization: Flue gases 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 This is an assembled product whose content is not exposed under normal handling conditions.

Persistence and Degradability: No information is available.

Bioaccumulative Potential: No information is available.

Soil Mobility: No information is available.




Other adverse effects: Explosion damage.

Section 13: Information regarding the disposal of products

Recommended and approved methods for safe disposal: Incinerate or detonate in small amounts by qualified personnel in compliance with law and current regulations. 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	0360	0360	0500
Proper UN Shipping Name	Detonator assemblies, non-electrical for blasting	Detonator assemblies, non-electrical for blasting	Detonator assemblies, non-electrical for blasting
Transport classification	1.1B (*)	1.1B (*)	1.4S (**)
Label			

Packaging group	II	II	II
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

(*) Applies to Carmex ZW, Carmex AB, Carmex Detonating Cord Initiator.

(**) Applies to Carmex (with connector) and Carmex (without connector).

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.

Date of Issue: 03/25/2022

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.
 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.