OPERATIONAL / USER MANUAL

SC 25 Marine Location Marker

Product # 69026

Version 4

2025-05-06

EST 1873
PYROTECHNICS INC.

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Operational / User Manual SC 25 Marine Location Marker

1 Introduction

The SC 25 MOD 3 Marine Location Marker (MLM) (See Commercial Data Sheet, Appendix A) is designed for day or night use in any condition calling for sea-surface reference-point marking that calls for both smoke and flame for a period of 13.5 to 18.5 minutes. The SC 25 MLM can be launched day and night from aircraft or surface ships to provide a smoke and flame reference point on the ocean's surface. In addition to being used for search and rescue operations, it is used for man-overboard markings, as a target for practice bombing at sea, and for antisubmarine warfare. The marker produces a yellow flame and white smoke for a minimum of 13.5 minutes and a maximum of 18.5 minutes. It is visible for at least 4.5 – 5.0 km under normal operating conditions.

Figure 1: SC 25 MOD 3

2 System identity

Denomination

Product number 69026 – SC 25 MOD 3 Marker, Location, Marine, is a commercial equivalent (fit, form and functional equivalent) to the MK 25 MOD 3, a US Navy (NAVAIR) product and is currently produced and tested with the same production equipment as it's NAVAIR equivalent.

Denomination	Designation	Registration
69026 – SC 25 MOD 3 Marker, Location, Marine.	Marker, Location, Marine	NSN 1370-00-690-1458

Physical Description

The SC 25 MOD 3 MLM consists of a cylindrical outer tube approximately 18.5 inches long and 3 inches in diameter. A valve assembly is fitted into the projecting chimney at the marker's nose end. The smoke and flame are emitted from this opening. At the opposite end is a heavier aluminum base assembly to which the outer tube is crimped. The heavy base causes the marker to float in the water with the chimney out of the water and the base in the water.

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All these parts are certified to be sealed at time of manufacture by 100% leak testing. HFI Pyrotechnics' SC 25 MLM is stored in a polystyrene container (containing eight (8) units) which is then stored on a pallet of a maximum of 28 polystyrene containers (8 units per container) - a total of 224 units.

Registration inspection / Certified / Accrediting

The Explosives Regulatory Division of Natural Resources Canada has classified the Marker, Location, Marine; SC 25 as follows:

Proper shipping name:	SIGNALS, DISTRESS, SHIP
UN number:	0195
UN class:	1.3G
Packing instructions:	P135
Type of explosive:	S.2*
Hazard category:	PE3

* S.2 defined as high-hazard special purpose explosion; Explosive Regulations, 2013

Certificate XP2050-H4-141126001 (Canada) and EX2015030613 (US DOT) can be provided as required.

3 Operation

General

Smoke and flame marking devices (MLMs) are pyrotechnic devices dropped on the ground or on the water's surface to emit smoke and/or flame. Reference points established by these devices serve a variety of purposes. They can be used to determine wind direction and approximate velocity, mark the location on the surface for emergency night landings, establish an initial contact point for continued search for a submarine, or locate target areas in antisubmarine warfare.

SC 25 MOD 3 Marine Location Marker[1]

The SC 25 MOD 3 MLM may be hand launched from aircraft or surface ships or launched from sonobuoy launchers by using a sonobuoy launch container (SLC) and the appropriate foam spacer.

Within the base assembly is a MK 72 Mod 0 seawater-activated battery. The SC 25 MOD 3 battery is shielded from water contact by two plugs fitted into 1/2-inch holes on two opposite sides of the base assembly. A rigid cover (arming plate), held in place by a retainer ring, is recessed into the base end. An arrow in the center of the arming plate indicates its safe or armed position. The words SAFE and ARMED are stamped into the base rim. Also, a machined notch in the rim at the armed position helps during night use.

When the arming plate is in the safe position, it physically blocks the base plugs internally to prevent them from being accidentally pushed in. When in the armed position, the arming plate no longer blocks the base

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plugs, allowing them to be pushed in at the appropriate time. A black rubber G-ring circles the base assembly approximately 1/4 inch from the crimp, which holds the outer case.

To activate the SC 25 MOD3, the arming plate is rotated to the ARMED position and the base plugs are pushed in. When the MLM is submerged, the MK 72 MOD 1 battery is activated by seawater. Current from the battery initiates a MK 13 MOD 0 electric squib, which ignites the starter composition of the first pyrotechnic candle. Gas buildup forces the valve assembly from the chimney in the nose, and yellow flame and white smoke are emitted.

During the functioning, an intense yellow flame and dense white smoke are emitted.

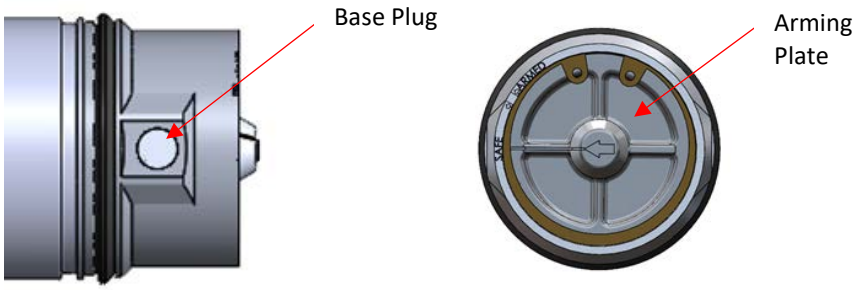

Figure 2: SC 25 Base Assembly

4 Safety Systems / Hazards

General

The SC 25 MOD 3 MLM is based on a proven design that pre-dates most system safety processes. HFI has produced this and similarly designed marine markers for over 50 years. The hazards inherent to the marine marker have been considered and hazard reducing measures are already incorporated in the design. Product testing confirms stability and durability.

Arming the marine marker before functioning is a two-stage process. First, rotate the arming plate 45° clockwise until the arrow lines up with the words ARMED. Second, push the base plugs into the battery cavity, located on the marker base, allowing water to enter the unit and activate the battery.

As with all pyrotechnic items, a primary hazard is accidental ignition. The pyrotechnic components have been assessed for their sensitivity to ignition stimuli – mechanical, thermal and electrostatic forces. The encasement and processing of the pyrotechnic components is sufficient to prevent accidental ignition at the level of sensitivity found for each component. Safety tests are routinely conducted on items to ensure the design is as safe as possible.

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The marine marker does contain small amounts of hazardous chemicals and release of these components is an intrinsic hazard. The chemicals are completely contained within the outer shell. There is no risk of exposure to hazardous chemicals from normal storage and handling. However, deployment of the marker introduces hazardous chemicals to the environment but at levels that are below the acceptable limits.

Components

The hazards associated with each component of the marker are summarized in the table below and found in the attached SDS in Appendix 2 – SAFETY DATA SHEET.

Component	CAS #	Health	Environmental
Cupric Oxide	1317-38-0	none	toxic to aquatic life
Lead Dioxide	1309-60-0	carcinogen teratogen	toxic to aquatic life
Linseed Oil, Boiled	8001-26-1	none	none
Manganese Dioxide	1313-13-9	irritant	none
Magnesium Powder	7439-95-4	none	none
Phosphorous, Red	7723-14-0	none	harmful to aquatic life
Silicon Powder	7440-21-3	none	none
Zinc Oxide	1314-13-2	none	none
Electric igniter	N/A	none	none
Salt water activated battery	N/A	none	none

Hazard reducing measures

The unit is designed to contain all hazardous components within the aluminum shell and maintain this integrity during normal handling, transportation and storage. This is verified by subjecting units to the durability and environmental tests described in MIL-STD 331 and listed below.

DURABILITY AND ENVIRONMENTAL

JOLT

Markers are designed to withstand jolt testing without burning, exploding, expelling the payload, or sustaining damage which would render the marker unsafe for transportation, storage, handling and use when subjected to the jolt test prescribed in Test A1 of MIL-STD-331.

TWELVE (12) METER DROP (FORTY FOOT DROP)

Markers are designed to withstand twelve (12) meter drop without burning, exploding, expelling the payload, or becoming unsafe to handle and dispose of when the marker shall be subjected to the twelve (12) meter drop test prescribed in Test A3 of MIL-STD-331, except the markers shall be dropped free-fall without guidance system or associated equipment.

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TRANSPORTATION VIBRATION

Markers are designed to withstand vibration testing without burning, exploding, expelling the payload, sustaining damage which would render the marker unsafe for transportation, storage, handling and use.

TEMPERATURE AND HUMIDITY

Markers are designed to withstand temperature and humidity without burning, exploding, or expelling the payload. The marker shall show no evidence of missing, broken, or displaced material or components. Adhesive items and markings shall not shrink, yellow, peel, crack, fade, blister, exhibit diffusion or bleeding of color, wrinkle or exhibit loss of adhesion or film embrittlement when the marker is subjected to one 14-day temperature and humidity cycle prescribed in Test C1, MIL-STD-331.

ONE AND ONE-HALF METER DROP (FIVE FOOT)

Markers are designed to withstand one and one-half meter drop testing without burning, exploding, expelling the payload, or sustaining damage which would render the marker unsafe for transportation, storage, handling and use when subjected to one and one-half meter drop testing in accordance with MIL-STD-331, Test A4.1.

In addition to the Durability and Environmental testing, the units are also subjected to a Seal integrity, static functioning and workmanship examination as detailed below:

SEALING

Markers withstands a vacuum of 6.0 + 1.0 inches of mercury for a minimum period of 30 seconds without leakage, when tested in a water tank equipped for observation under vacuum. Start producing a vacuum before the marker is submerged. The marker shall be submerged within five seconds after the vacuum process is started and before one inch of vacuum is reached. The marker shall be raised above the water level before releasing the vacuum. The uppermost surface of the marker shall be submerged 4 + 2 inches below the water surface and subjected to a vacuum of 6.0 + 1.0 inches of mercury for a minimum period of 30 seconds. Do not mistake the escape of externally occluded air for leakage. Leakers are indicated by a constant stream of air bubbles issuing from the marker.

STATIC FUNCTIONING

The marker shall not explode during static functioning.

Drop the marker into a minimum of 3 feet of sea water. The sea water temperature shall be 34^{o}F + 2^{o}F. The marker may be removed after ignition to a fresh water tank for completion of burning. Each Unit must comply as follows:

a. Produce an intense yellow flame and a large volume of dense white smoke for a minimum period of seven (7) minutes.
b. Produce an intense yellow flame and a large volume of dense white smoke within 15 seconds after striking the water.
c. Produce an intense yellow flame and a large volume of dense white smoke for 13.5 minutes minimum to 20 minutes maximum.

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WORKMANSHIP

The product, in all stages of production, shall be processed under such inspection control as to assure uniformity in quality. All components shall be free of chips, dirt, grit, or other foreign material. The cleaning methods used shall not damage any assembly or parts nor shall the assembly or parts be contaminated by the cleaning agents employed. There shall be no chemical or electro-chemical corrosive or deteriorative effects from the manufacturing process. Adhesive items and markings shall be complete and not show signs of shrinking, yellowing, peeling, cracking, fading, blistering, exhibiting diffusion or bleeding of color, wrinkling or exhibiting loss of adhesion or film embrittlement.

The unit design has passed tests and is classified as 1.3G for transportation purposes. The hazards associated with an explosive classified as 1.3G is radiant heat or violent burning with no risk of mass explosion or shrapnel hazard.

The unit is designed to produce an intense yellow flame and large volume of white smoke. The white smoke consists of phosphorus acids which are created by hydrolysis of phosphorous pentoxide in moist atmospheres.

1 Reference: Chapter 4 of the Navy BMR (an independent training organization) for Naval Pyrotechnics

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Appendices

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Appendix 1 – Commercial Data Sheet

MARINE LOCATION MARKER (SC25)

The SC25 Marine Location Marker is a commercial fit, form and function replacement for the U.S. Government MK25 MOD 3, NSN 1370-00-690-1458. The SC25 Marine Location Marker is designed for air and sea operations, primarily used to mark locations for search and rescue missions or as a surface wind indicator. The marker is deployable from aircrafts, ship, or small boats.

Once launched, the marker ignites upon contact with water through an internal battery activated by seawater, which then triggers the pyrotechnic signal (smoke and light) providing a clear, visible marker in both day and night operations. The SC25 is self-scuttling, meaning it will sink after use, ensuring that it does not leave debris in the water.

FEATURES AND BENEFITS

- ✓ All pyrotechnic components produced by HFI Pyrotechnics
- ✓ Long burn time
- ✓ Easy to use and deploy

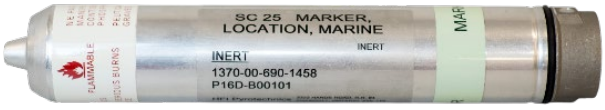
FEATURES

TECHNICAL DATA

Dimensions	Length: 47 cm Diameter: 7.6 cm
Weight	1.7 kg
Explosive Weight (NEQ)	820 g
Ignition	Within 20s of contact with water
Burn Time	Minimum 13.5 minutes
Deployment Speed	Up to 370 kph (200 kts)
Altitude	Up to 95 m (500 ft)
Shelf Life	Five (5) years
Service Life	One (1) year

PACKAGING

Classification	Signals, Distress, Ship
NSN #	1370-00-690-1458
UN Number	0195
Hazard Class	1.3G
Number per Carton	8 units per container, 28 containers per pallet
Carton Dimensions	69 x 52 x 14 cm
Gross Weight	17 kg



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Appendix 2 – Safety Data Sheet

PYROTECHNICS INC.

Safety Data Sheet

Version 4.0

Revision Date 30/08/2023

SECTION 1 – Identification

Product Identifier: Marker, Location Marine, SC 25
Other Means of Identification: Product Code 69026
NSN: 1370-00-690-1458

Recommended Use:
This product is designed for location and directional signaling. It produces a yellow flame and white smoke when electrically initiated. It is dropped from the air into a body of salt water to undergo electrical initiation. Follow the directions given on the label.

Restrictions on Use:
Exclusively used by military organizations.

Initial Supplier Identifier:
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Prescott, Ontario
K0E 1T0
Telephone: **(613) 925-2832**
Fax: **(613) 925-1207**

Emergency:
Telephone: **(613) 925-2832**
Restrictions: **Monday – Friday, 8:00-16:00 EST, excluding holidays**

SECTION 2 – Hazard Identification

Classification:
Explosive Division 1.3

Signal Word:
DANGER

Hazard Statements:
H203 Explosive; fire, blast or projection hazard.

Precautionary Statements:

P102	Keep out of reach of children.
P203	Obtain, read and follow all safety instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234	Keep only in original packaging.
P280	Wear protective gloves, eye protection, face protection, and hearing protection.
P370 + P372 + P380 + P373	In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.
P401	Store in accordance with local explosives regulations in an approved magazine.
P503	Follow safety instructions to dispose of contents.

Loose Composition:

These products are designed to contain all composition, therefore, if any composition is loose within the packaging or surrounding the product, this product is damaged and must be isolated and disposed of in a safe manner.

SECTION 3 – Composition/Information on Ingredients

Chemical Name	CAS Number	Concentration (% w/w)	Common Names / Synonyms	Chemical Formula
Manganese Dioxide	1313-13-9	10 to 30	Manganese (IV) Oxide	MnO_2
Red Phosphorous	7723-14-0	10 to 30	Red Phosphorus	P
Linseed Oil	8001-26-1	1 to 5	Flaxseed Oil	-
Magnesium	7439-95-4	1 to 5	-	Mg
Zinc Oxide	1314-13-2	1 to 5	Calamine Zinc Monoxide	ZnO
Silicon	7440-21-3	0.5 to 1.5	-	Si
Cupric Oxide	1317-38-0	0.1 to 1.0	Copper (II) Oxide	CuO
Potassium Nitrate	7757-79-1	0.1 to 1.0	Nitrate of Potash Saltpeter	KNO_3

The actual concentration is withheld as a trade secret.

SECTION 4 – First-Aid Measures

Description of first-aid measures

If inhaled:

If fumes from ignition or contents are inhaled, remove to fresh air. If not breathing, give artificial respiration and get medical aid.

In case of skin contact:
For burns, cool with water and bandage appropriately. If contents are contacted, wash area with soap and water for 15 minutes. Remove contaminated clothing and wash before reuse. Get medical aid if burned or irritation occurs.

In case of eye contact:
If burned, cover eye and get medical help immediately. If contents get into eyes, flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.

If swallowed:
Get medical aid immediately.

Most important symptoms and effects, both acute and delayed:
Burns resultant from ignition. Seek medical aid immediately.
Fumes from ignition contain phosphorous pentoxide and acidic phosphorous oxides, which can lead to severe injury and or burns. Seek medical aid immediately.

Indication of any immediate medical attention and special treatment needed:
Keep affected area wet to prevent spontaneous ignition of trace amounts of white phosphorous.

SECTION 5 – Fire-Fighting Measures

Suitable Extinguishing Media:
NONE. In case of fire: Explosion risk. Evacuate area.

Unsuitable Extinguishing Media:
All extinguishing media. DO NOT fight fire when fire reaches explosives.

Specific Hazards Arising from the Product:
The device will emit a yellow flame and white smoke when ignited. The white smoke contains phosphorous pentoxide and acidic phosphorous oxides and is harmful to mucous membranes and the respiratory tract. White phosphorous is formed from incomplete combustion and so a spent unit may spontaneously reignite. In addition, product produces oxides of manganese, magnesium, silicon, and carbon on combustion. May produce toxic fumes of carbon monoxide.

Protective Equipment and Precautions for Firefighters:
In the event of fire, explosion risk, evacuate immediate area. To protect from smoke, wear NIOSH approved respiratory protection for acid gases.

SECTION 6 – Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures:
In the event of a spill of the contents within the product, do not breathe powder and avoid contact with skin and eyes. Eliminate all ignition sources (No smoking, heat, hot surfaces, sparks, open flames and other ignition sources in immediate area). Wear flame retardant clothing with long sleeves, dust mask, nitrile gloves, face shield, hearing protection, and safety shoes. Use precautions to prevent ignition from electrostatic discharge, friction and impact. Do not touch or walk over spilled material and use appropriate barrier devices to contain the substance.

Methods and Materials for Containment and Clean-Up: Use caution when cleaning up spilled product contents. Remove all sources of ignition. Prevent buildup of electrostatic charge by electrical grounding. Prevent any sources of impact and friction. Contain spilled contents with barrier devices. Dampen material with fine water mist. Clean up with non-sparking and low impact tools and place in approved container. Wash away remainder with plenty of water. Collect wash water for approved disposal.

SECTION 7 – Handling and Storage

Precautions for Safe Handling:
Keep the arming cover set at safe until ready to function. Wear flame retardant and heat resistant gloves during operation. Keep a minimum distance of 20 metres from flare once ignited. Molten flecks may be emitted. Burning flare can cause severe burns if in contact with body. Throw unit away from self and others immediately after ignition. Do not crush or drop packages. Exercise caution when using this product since projectiles may be emitted. Follow instructions on unit. Avoid inhalation of smoke. Do not allow contents to touch eyes, skin, or clothing. Do not ingest. Wash hands thoroughly after handling. No smoking.

Conditions for Safe Storage:
Store only in approved magazines, in original packaging. Store in a dry, cool, and well-ventilated area. Avoid heat, electrical current, and acids. Keep away from ignition sources (No smoking, heat, hot surfaces, sparks, open flames and other ignition sources). Store only with the same explosives class and within the approved net explosive quantity limits. Protect against physical damage.

SECTION 8 – Exposure Controls/Personal Protection

Control Parameters:

Components	Exposure Limit (TWA)	Basis
Manganese Dioxide	0.1 mg/m^3	American Conference of Governmental Industrial Hygienists (ACGIH)
Red Phosphorous	0.1 mg/m^3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Linseed Oil	No information available	N/A
Magnesium	No information available	N/A
Zinc Oxide	2 mg/m^3	American Conference of Governmental Industrial Hygienists (ACGIH)
Silicon	10 mg/m^3 as total dust	National Institute for Occupational Safety & Health (NIOSH)
Cupric Oxide	1 mg/m^3 as Cu	American Conference of Governmental Industrial Hygienists (ACGIH)
Potassium Nitrate	No information available	N/A

Appropriate Engineering Controls:
Only use outdoors.

Individual Protection Measures:

Eye:
Wear ANSI-approved goggles or safety glasses.

Skin:
Recommended to wear face shield, flame retardant coveralls, and fame retardant heat resistant gloves during operation. If needed wear chemical protective and fire-resistant clothing when cleaning up remains.

Respiratory:
For conditions of use where exposure to concentrated smoke is apparent and engineering controls are not feasible, a NIOSH approved acid gas respirator may be used.

Additional:
None.

SECTION 9 – Physical and Chemical Properties

Appearance:	Aluminum Tube
Odour:	Odourless
Odour Threshold:	Not Applicable
pH:	Not Applicable
Melting Point and Freezing Point:	No Data Available
Initial Boiling Point and Boiling Range:	Not Applicable
Flash Point:	Not Applicable
Evaporation Rate:	Not Applicable
Flammability (solid, gas):	Product is a solid explosive
Upper and Lower Flammability or Explosive Limits:	Not Applicable
Vapour Pressure:	Not Applicable
Vapour Density:	Not Applicable
Relative Density:	No Data Available
Solubility:	Not Applicable
Partition Coefficient, n-Octanol / Water:	Not Applicable
Auto-Ignition Temperature:	330°C
Decomposition Temperature:	No Data Available
Viscosity:	Not Applicable
Net Explosive Quantity:	0.8 kg

SECTION 10 – Stability and Reactivity

Reactivity:
Product is an explosive and will self-propagate resulting in a yellow flame and white smoke if ignited.

Chemical Stability:
Stable under normal use conditions.

Possibility of Hazardous Reactions:
Hazardous polymerization will not occur.

Conditions to Avoid:
Excessive temperatures, sources of ignition.

Incompatible Materials:
Volatile or corrosive chemicals, strong oxidizers, acids, and alkalis.

Hazardous Decomposition Materials:
Phosphorous oxides. Oxides of manganese, magnesium, silicon, and carbon including carbon monoxide. Trace amounts of white phosphorous.

SECTION 11 – Toxicological Information

Likely Routes of Exposure:
As a completed final product, all routes of exposure are unlikely. However, if the composition leaks from product it is possible to be exposed via the eyes, skin, inhalation, and ingestion.

Acute Toxicity:
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Components	Route	Species	Value
Overall Product	Ingestion	-	No data available; calculated ATE 25,000 mg/kg
Overall Product	Dermal	-	No data available; calculated ATE 91,000 mg/kg
Overall Product	Inhalation	-	No data available
Cupric Oxide	Ingestion	Rat	LD50 > 2500 mg/kg
Cupric Oxide	Dermal	Rat	LD50 > 2000 mg/kg
Manganese Dioxide	Ingestion	Rat	LD50 > 9000 mg/kg
Potassium Nitrate	Ingestion	Rat	LD50 > 3015 mg/kg
Potassium Nitrate	Dermal	Rat	LD50 > 5000 mg/kg
Red Phosphorous	Ingestion	Rat	LD50 > 15000 mg/kg
Silicon	Ingestion	Rat	LD50 > 3160 mg/kg
Silicon	Dermal	Rabbit	LD50 > 5000 mg/kg
Zinc Oxide	Ingestion	Rat	LD50 > 5000 mg/kg

Skin Corrosion / Irritation:

Components	Species	Value
Cupric Oxide	Rabbit	No skin irritation – 4 h
Manganese Dioxide	Rabbit	No skin irritation – 4 h
Potassium Nitrate	Rabbit	No skin irritation – 4 h
Red Phosphorous	Rabbit	No skin irritation – 24 h
Zinc Oxide	Reconstructed Human Epidermis	No skin irritation – 1 h

Serious Eye Damage / Irritation:

Components	Species	Value
Cupric Oxide	Rabbit	No eye irritation
Manganese Dioxide	Rabbit	No eye irritation – 72 h
Potassium Nitrate	Rabbit	No eye irritation
Red Phosphorous	Rabbit	No eye irritation
Silicon	Rabbit	Mild irritation - 24 h
Zinc Oxide	Rabbit	Very mild irritation

Respiratory or Skin Sensitization:

Components	Species	Value
Cupric Oxide	Guinea pig	Negative
Manganese Dioxide	Mouse	Negative
Potassium Nitrate	Mouse	Negative
Red Phosphorous	Guinea pig	Negative
Zinc Oxide	Guinea pig	Negative

Germ Cell Mutagenicity:

Components	Route	Value
Cupric Oxide	In vivo - Rat	Negative
Potassium Nitrate	In vitro	Negative
Red Phosphorous	In vitro	Negative
Zinc Oxide	In vitro	Negative

Carcinogenicity:
No data available.

Reproductive Toxicity:
No data available.

STOT (Specific Target Organ Toxicity) – Single Exposure:
No data available.

STOT (Specific Target Organ Toxicity) – Repeated Exposure:
No data available.

Aspiration Toxicity:
No data available.

SECTION 12 – Ecological Information

Ecotoxicity:

Components	Species	Value
Cupric Oxide	Pimephales promelas (Fathead minnow)	LC50 – 0.193 mg/l for 96 hr
Cupric Oxide	Daphnia magna (Water flea)	EC50 – 0.011-0.039 mg/l for 48 hr
Potassium Nitrate	Daphnia magna (Water flea)	LC50 – 490 mg/l
Potassium Nitrate	Lepomis macrochirus (Bluegill)	LC50 – 3575 mg/l
Potassium Nitrate	Gambusia affinis (Western mosquitofish)	LC50 – 224 mg/l
Potassium Nitrate	Eisenia fetida (Earthworm)	LC50 – 144 µg/sq cm/48 hr
Red Phosphorous	Danio rerio (Zebra fish)	LC50 – 33.2 mg/l
Red Phosphorous	Daphnia magna (Water flea)	EC50 – 10.5 mg/l
Zinc Oxide	Colinus virginianus (Bobwhite quail)	LC50 > 5000 ppm
Zinc Oxide	Lepomis macrochirus (Bluegill sunfish)	LC50 > 320 ppm

Persistence and Degradability:
No data available.

Bioaccumulative Potential:
No data available.

Mobility in Soil:
No data available.

SECTION 13 – Disposal Considerations

For disposal of live units:
All waste must be handled in accordance with the local, state and federal regulations. It is best to destroy via functioning by design as per instructions. If unavailable, disposal by only a properly trained and authorised party who can safely destroy explosives.

For disposal of spent units:
All waste must be handled in accordance with the local, state and federal regulations. Disposal by only properly trained personnel.

SECTION 14 – Transportation Information

UN Number:	**UN0195**
Proper Shipping Name:	**SIGNALS, DISTRESS, ship**
Hazard Class:	**1.3G**
Packing Group:	**II**
Dimensions:	**690 x 520 x 140 mm**
Gross Weight:	**17 kg**
Net Explosive Content:	**6.4 kg/case**

SECTION 15 – Regulatory Information

Safety, Health and Environmental Regulations:
Product is authorized by Explosives Regulatory Division of Natural Resources Canada.

SECTION 16 – Other Information

The information contained herein is furnished without warranty of any kind. Employers should use this information as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from other sources to assure proper use of these materials and the safety and health of employees.

Date of Latest Revision: August 30, 2023.

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