

SECTION 1: IDENTIFICATION**1.1. Product Identifier****Product Form:** Mixture**Product Name:** FLAMELESS EXPULSION OC GRENADE**Product Code:** 2040 (1011825)**1.2. Intended Use of the Product****Use of the Substance/Mixture:** Explosive Product**1.3. Name, Address, and Telephone of the Responsible Party****Company**

Defense Technology, LLC

1855 South Loop

Casper, WY 82601

United States

Tel +1 (307) 235-2136

customer care.wy@defense-technology.com

1.4. Emergency Telephone Number**Emergency Number**

: VelocityEHS

(800)255-3924 (North America)

+1 (813)248-0585 (International)

VelocityEHS

North America: 1-800-255-3924 (Toll-Free)

International: 1-803-248-0585

Emergencies within Australia - 131126 (NSW Poison Control Centre)

Emergencies within New Zealand - 0800 764 766 (National Poison Control Centre)

SECTION 2: HAZARDS IDENTIFICATION**2.1. Classification of the Substance or Mixture****GHS-US Classification**

Explosive Category 1.4 H204

Gases under pressure Compressed gas H280

Skin corrosion/irritation Category 2 H315

Serious eye damage/eye irritation Category 2A H319

Specific target organ toxicity — Single exposure, Category 3, H335

Respiratory tract irritation

Hazardous to the aquatic environment - Acute Hazard Category 3 H402

Hazardous to the aquatic environment - Chronic Hazard Category 3 H412

2.2. Label Elements**GHS-US Labeling****Hazard Pictograms (GHS-US)**

:



GHS01



GHS04



GHS07

Signal Word (GHS-US)

: Warning

Hazard Statements (GHS-US): H204 - Fire or projection hazard.
H280 - Contains gas under pressure; may explode if heated.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H402 - Harmful to aquatic life.
H412 - Harmful to aquatic life with long lasting effects.**Precautionary Statements (GHS-US)**: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/Bond container and receiving equipment.
P250 - Do not subject to grinding/shock/friction.
P261 - Avoid breathing vapors, mist, or spray.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

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P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, and eye protection.
P302+P352 - If on skin: Wash with plenty of water.
P304+P340 - If inhaled: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 - Call a poison center or doctor if you feel unwell.
P321 - Specific treatment (see section 4 on this SDS).
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P380 - In case of fire: Evacuate area.
P372 - Explosion risk in case of fire.
P373 - DO NOT fight fire when fire reaches explosives.
P374 - Fight fire with normal precautions from a reasonable distance.
P401 - Store in accordance with local, regional, national, and international regulations.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Synonyms	Product Identifier	%	GHS US classification
Carbon dioxide	CARBON DIOXIDE / Carbonic anhydride	(CAS-No.) 124-38-9	46.05	Simple Asphy, SIAS
Magnesium oxide (MgO)	Calcined magnesite / Magnesium oxide / MAGNESIUM OXIDE / Magnesia	(CAS-No.) 1309-48-4	36.70846 8	Not classified
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	Hexamethyldisilazane, silica reaction product / Hydrolysis products with silica, silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)- / Hexamethyldisilazane, reaction product with silica / Hydrophobic amorphous fumed silica / Hexamethyl disilazane-treated silica / Pyrogenic, synthetic amorphous, nano, surface treated silicon dioxide	(CAS-No.) 68909-20-6	4.333848	Comb. Dust
Barium chromate	Baryta Yellow / C.I. Pigment Yellow 31 / Chromic acid (H ₂ CrO ₄), barium salt (1:1) / Chromic acid, barium salt (1:1) / Lemon Yellow / Permanent Yellow / Pigment Yellow 31 / Ultramarine Yellow	(CAS-No.) 10294-40-3	2.336256	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 1A, H350

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Nitrocellulose	NITROCELLULOSE / COLLODION / Nitrocellulose, mixture, without pigment / Guncotton / Collodion / Cellulose, nitrate / Cellulose nitrate / Pyroxylin	(CAS-No.) 9004-70-0	2.193282	Expl. 1.1, H201
Manganese	Manganese, elemental / Manganese metal / manganese	(CAS-No.) 7439-96-5	2.085798	Flam. Sol. 2, H228 STOT RE 1, H372 Aquatic Acute 2, H401 Aquatic Chronic 2, H411 Comb. Dust
Chromic acid (H ₂ CrO ₄), lead(2+) salt (1:1)	Lead chromate / C.I. Pigment Yellow 34 / Chrome Yellow / Chromic acid (H ₂ CrO ₄), lead(2+) salt / Chromic acid, lead(2+) salt (1:1) / Lead chromate (PbCrO ₄) / Lead chromate(VI) / Lead(II) chromate / Lead(2+) chromate / C.I. 77600 / Lead(II) tetraoxidochromate / lead chromate	(CAS-No.) 7758-97-6	2.085798	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Carc. 1A, H350 Repr. 1A, H350
Resins, oleo-, capsicum	Capsicum oleoresin / Capsicum oleoresin, oil soluble / Capsicum oleoresins, extractives and their physically modified derivatives such as essential oils, oleoresins, etc. (Capsicum frutescens L.) / CAPSICUM FRUTESCENS OLEORESIN / Capsicin / Resins, oleo-, capsicum (Extractives and their physically modified derivatives. It is a product which may contain resin acids and their esters, terpenes, and oxidation or polymerization products of these terpenes. (Capsicum frutescens, Solanaceae).) / CAPSICUM FRUTESCENS RESIN / Pepper spray / Bush red pepper oleoresin / Capsicum frutescens resin / capsicum oleoresin	(CAS-No.) 8023-77-6	2.037684	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
Iron oxide (Fe ₂ O ₃)	C.I. 77491 / C.I. Pigment Red 101 / Diiron trioxide / Ferric oxide / Iron sesquioxide / Iron(III) oxide / Red Iron Oxide / Rouge / CI 77491 / Iron trioxide / Sienna / Pigment Red 101 / Red iron oxide / Red iron oxide pigment / Iron Oxide Red / Diiron(III) trioxide / Iron oxide / Ferric oxide red / Iron oxide, red	(CAS-No.) 1309-37-1	0.575952	Comb. Dust
Potassium nitrate	Nitric acid potassium salt / Nitric acid, potassium salt / Nitric acid potassium salt (1:1) / POTASSIUM NITRATE / potassium nitrate	(CAS-No.) 7757-79-1	0.5548	Ox. Sol. 3, H272 Acute Tox. 3 (Inhalation:dust,mist), H331
Titanium	Titanium powder, dry / Titanium powder / Titanium powder, wetted / Titanium sponge powders / titanium	(CAS-No.) 7440-32-6	0.374166	Flam. Sol. 1, H228 Comb. Dust
Zirconium	Zirconium, elemental / Zirconium metal / Zirconium powder (pyrophoric) / Zirconium suspended in a flammable liquid / Zirconium powder, dry / Zirconium metallic	(CAS-No.) 7440-67-7	0.201786	Pyr. Sol. 1, H250 Water-react. 1, H260 Comb. Dust

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Copper	Copper, metallic / Pigment Metal 2 / Copper metal / CI 77400 / Copper, elemental / C.I. Pigment Metal 2 / C.I. 77400 / Granulated copper / copper	(CAS-No.) 7440-50-8	0.158386 8 – 0.187184 4	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Comb. Dust
Charcoal	Charcoal (An amorphous form of carbon produced by partially burning or oxidizing wood or other organic matter.)	(CAS-No.) 16291-96-6	0.1022	Self-heat. 2, H252 Acute Tox. 4 (Inhalation:dust,mist), H332 Comb. Dust
Zinc	C.I. Pigment Black 16 / C.I. Pigment Metal 6 / Zinc (metallic) / Pigment Black 16 / Zinc powder - zinc dust (stabilised) / Zinc powder - zinc dust (pyrophoric) / ZINC / zinc	(CAS-No.) 7440-66-6	0.071994 – 0.100791 6	Pyr. Sol. 1, H250 Water-react. 1, H260 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Comb. Dust
Sulfur	Sulphur / Sulphur, molten / Elemental sulfur / Brimstone / SULFUR / Elemental sulphur / Sulfur, elemental / sulfur	(CAS-No.) 7704-34-9	0.073	Skin Irrit. 2, H315 Aquatic Acute 3, H402 Aquatic Chronic 3, H412 Comb. Dust
Potassium chlorate	potassium chlorate / POTASSIUM CHLORATE / Chloric acid, potassium salt (1:1) / Chloric acid, potassium salt / Berthollet's salt / Berthollet salt	(CAS-No.) 3811-04-9	0.010079 16 – 0.012958 92	Ox. Sol. 1, H271 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Calcium silicide (CaSi)	Calcium silicide	(CAS-No.) 12013-55-7	0.000287 976 – 0.005759 52	Water-react. 2, H261
Glass, oxide, chemicals	Glass, oxide / Glass / Sodium calcium polyphosphate / Glass powder / Calcium sodium polyphosphate / Sodium calcium polyphosphate silicate / Sodium zinc potassium polyphosphate / Glass flake / Calcium aluminum borosilicate / Glass dust / GLASS / Fiberglass / CALCIUM ALUMINUM BOROSILICATE	(CAS-No.) 65997-17-3	0.000287 976 – 0.005759 52	Not classified
Cellulose	Microcrystalline cellulose / CELLULOSE / Cellulose, microcrystalline / MICROCRYSTALLINE CELLULOSE	(CAS-No.) 9004-34-6	0.000287 976 – 0.005759 52	Comb. Dust
Hemicellulose	Hemicellulose extract / Psyllium hemicellulose	(CAS-No.) 9034-32-6	0.000287 976 – 0.005759 52	Comb. Dust
Barium nitrate	Barium(II) nitrate (1:2) / Nitric acid, barium salt / Barium(II) nitrate / Nitric acid, barium salt (2:1) / Barium dinitrate	(CAS-No.) 10022-31-8	0.000287 976 – 0.004319 64	Ox. Sol. 2, H272 Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation:dust,mist), H332 Eye Irrit. 2A, H319

Full text of H-phrases: see section 16

* The actual concentration of ingredient(s) is withheld as a trade secret in accordance with the Hazardous Products Regulations (HPR) SOR/2015-17 and 29 CFR 1910.1200. Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%). Full text of H-statements: see section 16.

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SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Flush with plenty of water for at least 15 minutes. Seek medical advice if irritation develops or persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

Symptoms/Injuries: Energetic effects (blast effects, heat, noise, and shrapnel) from functioning of the product can cause serious physical injuries.

Symptoms/Injuries After Inhalation: During deployment: . May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.

Symptoms/Injuries After Skin Contact: During deployment: . Causes skin irritation. Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: During deployment: . May cause severe irritation. After ammunition has been fired, dust, vapors, and/or fumes may cause irritation.

Symptoms/Injuries After Ingestion: Ingestion is unlikely due to product form. Ingestion may cause adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Water spray, fog, carbon dioxide (CO₂), alcohol-resistant foam, or dry chemical.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Heating may cause a fire or explosion.

Explosion Hazard: Risk of explosion if heated under confinement.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Flood fire area with water from a distance. Move containers from the fire area if you can do it without risk. Do not move cargo or vehicle if cargo has been exposed to heat. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks due to exploding potential when tanks are involved in a fire.

For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. DO NOT fight fire when fire reaches explosives.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Oxides of carbon, nitrogen, and sulfur are evolved in fire.

Other Information: No additional information available.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing dust. Avoid breathing dust.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Non-emergency personnel should evacuate the area of the spill and only enter after emergency personnel have declared the area safe to enter.

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Eliminate ignition sources first, then ventilate the area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

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6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Mechanically recover the product. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Risk of explosion if heated under confinement. OC released during deployment is an irritant to skin, eyes, and respiratory system.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing dust.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a locked gate / secure area. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Materials: Strong acids, strong bases, strong oxidizers.

7.3. Specific End Use(s)

Explosive Product

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Carbon dioxide (124-38-9)		
USA ACGIH	ACGIH OEL TWA [ppm]	5000 ppm
USA ACGIH	ACGIH OEL STEL [ppm]	30000 ppm
USA NIOSH	NIOSH REL (TWA)	9000 mg/m ³
USA NIOSH	NIOSH REL TWA [ppm]	5000 ppm
USA NIOSH	NIOSH REL (STEL)	54000 mg/m ³
USA NIOSH	NIOSH REL STEL [ppm]	30000 ppm
USA IDLH	IDLH [ppm]	40000 ppm
USA OSHA	OSHA PEL (TWA) [1]	9000 mg/m ³
USA OSHA	OSHA PEL (TWA) [2]	5000 ppm
Magnesium oxide (MgO) (1309-48-4)		
USA ACGIH	ACGIH OEL TWA	10 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA IDLH	IDLH	750 mg/m ³ (fume)
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m ³ (fume, total particulate)
Copper (7440-50-8)		
USA ACGIH	ACGIH OEL TWA	0.2 mg/m ³ (fume)
USA NIOSH	NIOSH REL (TWA)	1 mg/m ³ (dust and mist) 0.1 mg/m ³ (fume)
USA IDLH	IDLH	100 mg/m ³ (dust, fume and mist)
USA OSHA	OSHA PEL (TWA) [1]	0.1 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Glass, oxide, chemicals (65997-17-3)		
USA NIOSH	NIOSH REL (TWA)	3 fibers/cm ³ (fibers ≤3.5 μm in diameter & ≥10μm in length), TWA 5mg/m ³ (total)
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m ³ total dust, 5 mg/m ³ , respirable fraction 8 hr
Barium nitrate (10022-31-8)		
USA NIOSH	NIOSH REL (TWA)	0.5 mg/m ³

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USA IDLH	IDLH	50 mg/m ³
Cellulose (9004-34-6)		
USA ACGIH	ACGIH OEL TWA	10 mg/m ³
USA NIOSH	NIOSH REL (TWA)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
Iron oxide (Fe₂O₃) (1309-37-1)		
USA ACGIH	ACGIH OEL TWA	5 mg/m ³ (respirable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA NIOSH	NIOSH REL (TWA)	5 mg/m ³ (dust and fume)
USA IDLH	IDLH	2500 mg/m ³ (dust and fume)
USA OSHA	OSHA PEL (TWA) [1]	10 mg/m ³ (fume) 15 mg/m ³ (total dust (Rouge)) 5 mg/m ³ (respirable fraction (Rouge))
Zirconium (7440-67-7)		
USA ACGIH	ACGIH OEL TWA	5 mg/m ³
USA ACGIH	ACGIH OEL STEL	10 mg/m ³
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA NIOSH	NIOSH REL (TWA)	5 mg/m ³
USA NIOSH	NIOSH REL (STEL)	10 mg/m ³
USA IDLH	IDLH	50 mg/m ³
Manganese (7439-96-5)		
USA ACGIH	ACGIH OEL TWA	0.02 mg/m ³ (respirable particulate matter) 0.1 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA NIOSH	NIOSH REL (TWA)	1 mg/m ³ (fume)
USA NIOSH	NIOSH REL (STEL)	3 mg/m ³
USA IDLH	IDLH	500 mg/m ³
USA OSHA	OSHA PEL (Ceiling)	5 mg/m ³ (fume)
Chromic acid (H₂CrO₄), lead(2+) salt (1:1) (7758-97-6)		
USA ACGIH	ACGIH OEL TWA	0.0002 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH OEL STEL	0.0005 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Confirmed Human Carcinogen, dermal sensitizer

8.2. Exposure Controls

Appropriate Engineering Controls

- : Suitable eye/body wash equipment should be available in the vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment

- : Gloves. Protective clothing. Protective goggles.



Materials for Protective Clothing Hand Protection

- : Chemically resistant materials and fabrics.
- : When needed, wear protective gloves to protect against thermal and/or mechanical hazards.

Eye and Face Protection Skin and Body Protection Respiratory Protection

- : During deployment: . Chemical safety goggles or safety glasses with side shields.
- : During deployment: . Wear suitable protective clothing.
- : If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information

- : When using, do not eat, drink or smoke.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Solid metal container containing solid and gaseous contents
Odor	: Pungent, irritating
Odor Threshold	: No data available
pH	: No data available
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20°C	: No data available
Relative Density	: No data available
Solubility	: No data available
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available
Explosive Properties	: Class 1.4 - Explosives (with no significant blast hazard) 49 CFR 173.50.

9.2. Other Information

No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Hazardous reactions will not occur under normal conditions.

10.2. Chemical Stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions

Hazardous polymerization will not occur. Heating may cause a fire or explosion.

10.4. Conditions to Avoid

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5. Incompatible Materials

Strong acids, strong bases, strong oxidizers.

10.6. Hazardous Decomposition Products

Oxides of carbon, nitrogen, and sulfur are evolved in fire.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

Potassium nitrate (7757-79-1)	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 0.527 mg/l/4h (No deaths)
ATE (Oral)	3,015.00 mg/kg body weight
ATE (Dust/Mist)	0.50 mg/l/4h
Sulfur (7704-34-9)	
LD50 Oral Rat	> 3000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	> 9.23 mg/l/4h
Charcoal (16291-96-6)	
LC50 Inhalation Rat	> 4.97 mg/l/4h
ATE (Dust/Mist)	1.50 mg/l/4h

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Resins, oleo-, capsicum (8023-77-6)	
LD50 Oral Rat	> 3 g/kg
LC50 Inhalation Rat	> 10000 g/m ³ (Exposure time: 4 h)
ATE (Oral)	500.00 mg/kg body weight
Magnesium oxide (MgO) (1309-48-4)	
LD50 Oral Rat	3870 mg/kg
Copper (7440-50-8)	
LC50 Inhalation Rat	> 5.11 mg/l/4h
Potassium chlorate (3811-04-9)	
LD50 Oral Rat	1870 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.1 mg/l/4h
ATE (Dust/Mist)	1.50 mg/l/4h
Barium nitrate (10022-31-8)	
LD50 Oral Rat	50 – 300 mg/kg
LC50 Inhalation Rat	> 1.1 mg/l/4h (Species: Wistar)
ATE (Oral)	50.00 mg/kg body weight
ATE (Dust/Mist)	1.50 mg/l/4h
Cellulose (9004-34-6)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	> 5800 mg/m ³ (Exposure time: 4 h)
Nitrocellulose (9004-70-0)	
LD50 Oral Rat	5000 mg/kg
Iron oxide (Fe₂O₃) (1309-37-1)	
LD50 Oral Rat	> 10000 mg/kg
Barium chromate (10294-40-3)	
ATE (Oral)	500.00 mg/kg body weight
ATE (Dust/Mist)	1.50 mg/l/4h
Manganese (7439-96-5)	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.14 mg/l/4h
LC50 Inhalation Rat	> 5.14 mg/l/4h

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified. Not classified.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified.

Glass, oxide, chemicals (65997-17-3)	
IARC group	3
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
Iron oxide (Fe₂O₃) (1309-37-1)	
IARC group	3
Barium chromate (10294-40-3)	
IARC group	1
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.
Chromic acid (H₂CrO₄), lead(2+) salt (1:1) (7758-97-6)	
IARC group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens, Reasonably anticipated to be Human Carcinogen.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

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Specific Target Organ Toxicity (Repeated Exposure): Not classified.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: During deployment: . May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.

Symptoms/Injuries After Skin Contact: During deployment: . Causes skin irritation. Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: During deployment: . May cause severe irritation. After ammunition has been fired, dust, vapors, and/or fumes may cause irritation.

Symptoms/Injuries After Ingestion: Ingestion is unlikely due to product form. Ingestion may cause adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General : Not classified.

Potassium nitrate (7757-79-1)	
EC50 - Crustacea [1]	490 mg/l
Sulfur (7704-34-9)	
LC50 Fish 1	866 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
EC50 - Crustacea [1]	736 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 Fish 2	14 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
Copper (7440-50-8)	
LC50 Fish 1	0.0068 – 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 - Crustacea [1]	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	0.0426 (0.0426 – 0.0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC50 Fish 2	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Other Aquatic Organisms 2	0.031 (0.031 – 0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
Zinc (7440-66-6)	
LC50 Fish 1	2.16 – 3.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 - Crustacea [1]	0.139 – 0.908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 Fish 2	0.211 – 0.269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])
ErC50 (Algae)	0.15 mg/l
Potassium chlorate (3811-04-9)	
LC50 Fish 1	13500 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 - Crustacea [1]	879.7 mg/l
LC50 Fish 2	1750 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
ErC50 (Algae)	2.8 mg/l
NOEC Chronic Algae	1.5 mg/l
Barium nitrate (10022-31-8)	
EC50 - Crustacea [1]	9018 mg/l
Nitrocellulose (9004-70-0)	
ErC50 (Algae)	579 mg/l
Iron oxide (Fe2O3) (1309-37-1)	
LC50 Fish 1	100000 mg/l (Exposure time: 96 h - Species: Danio rerio [static])
Manganese (7439-96-5)	
LC50 Fish 1	> 3.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])
NOEC Chronic Fish	3.6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss)

12.2. Persistence and Degradability

FLAMELESS EXPULSION OC GRENADE	
Persistence and Degradability	Not established.
Copper (7440-50-8)	

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Persistence and Degradability	Not readily biodegradable.
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12.3. Bioaccumulative Potential

FLAMELESS EXPULSION OC GRENADE	
Bioaccumulative Potential	Bioaccumulation of metals cannot be excluded.
Charcoal (16291-96-6)	
Partition coefficient n-octanol/water (Log Pow)	(0.3 - <=3.48 - at 25 °C (at pH 6.97)
Carbon dioxide (124-38-9)	
BCF Fish 1	(no bioaccumulation)
Partition coefficient n-octanol/water (Log Pow)	0.83

12.4. Mobility in Soil

FLAMELESS EXPULSION OC GRENADE	
Ecology - Soil	No data available.

12.5. Other Adverse Effects

Other Adverse Effects : None known.
 Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Waste Treatment Methods: Incineration is the preferred method for disposal of waste product. . Can be landfilled, when in compliance with local regulations.

Sewage Disposal Recommendations: Do not dispose of waste into sewer. Do not empty into drains.

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT

Proper Shipping Name : AMMUNITION, TEAR-PRODUCING
 Hazard Class : 1.4G
 Identification Number : UN0301
 Label Codes : 1.4G, 8, 6.1



14.2. In Accordance with IMDG

Proper Shipping Name : AMMUNITION, TEAR-PRODUCING
 Hazard Class : 1
 Division : 1.4
 Compatibility Group : G
 Subsidiary Risk(s) : 6.1, 8
 Identification Number : UN0301
 Label Codes : 1.4G, 6.1, 8
 EmS-No. (Fire) : F-B
 EmS-No. (Spillage) : S-Z



14.3. In Accordance with IATA

Proper Shipping Name : AMMUNITION, TEAR-PRODUCING
 Identification Number : UN0301
 Hazard Class : 1
 Label Codes : 1.4G, 6.1, 8
 Division : 1.4
 Compatibility Group : G
 Subsidiary Risk(s) : 6.1, 8
 ERG Code (IATA) : 1CP



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SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Potassium nitrate (7757-79-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Sulfur (7704-34-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Charcoal (16291-96-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Carbon dioxide (124-38-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Resins, oleo-, capsicum (8023-77-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Magnesium oxide (MgO) (1309-48-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Copper (7440-50-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1 %
Zinc (7440-66-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	454 kg no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
SARA Section 313 - Emission Reporting	1 % (dust or fume only)
Potassium chlorate (3811-04-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Calcium silicide (CaSi) (12013-55-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Glass, oxide, chemicals (65997-17-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Barium nitrate (10022-31-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Cellulose (9004-34-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
Hemicellulose (9034-32-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
Nitrocellulose (9004-70-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
Iron oxide (Fe2O3) (1309-37-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Titanium (7440-32-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Zirconium (7440-67-7)	

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Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Barium chromate (10294-40-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Manganese (7439-96-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

Subject to reporting requirements of United States SARA Section 313

SARA Section 313 - Emission Reporting

1 %

Chromic acid (H₂CrO₄), lead(2+) salt (1:1) (7758-97-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

EPA TSCA Regulatory Flag

SP - SP - indicates a substance that is identified in a proposed Significant New Uses Rule.

Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica (68909-20-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

15.2. US State Regulations

Potassium nitrate (7757-79-1)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

Sulfur (7704-34-9)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

Carbon dioxide (124-38-9)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

Magnesium oxide (MgO) (1309-48-4)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

Copper (7440-50-8)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

Zinc (7440-66-6)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

Potassium chlorate (3811-04-9)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

Barium nitrate (10022-31-8)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

Cellulose (9004-34-6)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

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Nitrocellulose (9004-70-0)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List

Iron oxide (Fe₂O₃) (1309-37-1)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List

Titanium (7440-32-6)

U.S. - New Jersey - Right to Know Hazardous Substance List

Zirconium (7440-67-7)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List

Barium chromate (10294-40-3)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Massachusetts - Right To Know List

Manganese (7439-96-5)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

Chromic acid (H₂CrO₄), lead(2+) salt (1:1) (7758-97-6)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 02/08/2023

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200
* The actual concentration of ingredient(s) is withheld as a trade secret in accordance with the Hazardous Products Regulations (HPR) SOR/2015-17 and 29 CFR 1910.1200. Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%). Full text of H-statements: see section 16.

GHS Full Text Phrases:

H201	Explosive; mass explosion hazard
H204	Fire or projection hazard
H228	Flammable solid
H250	Catches fire spontaneously if exposed to air
H252	Self-heating in large quantities; may catch fire
H260	In contact with water releases flammable gases which may ignite spontaneously
H261	In contact with water releases flammable gas
H271	May cause fire or explosion; strong oxidizer
H272	May intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H301	Toxic if swallowed
H302	Harmful if swallowed

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H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H331	Toxic if inhaled
H332	Harmful if inhaled
H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)