

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200)

Printing date: 06/23/2016

Revision: 06/23/2016

1 Identification

- **Product identifier**
- **Trade name:** Flameless Expulsion Grenade, CS Powder
- **Product code:** MP-2FE-CS
- **Recommended use and restriction on use**
- **Recommended use:** Explosive product.
- **Restrictions on use:** Contact manufacturer
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
NonLethal Technologies, Inc.
9419 Rt 286 Hwy W
Homer City, PA 15748
USA
+1 724-479-5100
nlt@nonlethaltechnologies.com
- **Emergency telephone number:** 1-800-255-3924 (Intl.: +1 813-248-0585) (CHEMTEL # MIS9685256)

2 Hazard(s) identification

- **Classification of the substance or mixture**
- Expl. 1.4 H204 Fire or projection hazard.
- Press. Gas H280 Contains gas under pressure; may explode if heated.
- Acute Tox. 3 H301 Toxic if swallowed.
- Acute Tox. 3 H311 Toxic in contact with skin.
- Acute Tox. 2 H330 Fatal if inhaled.
- Skin Irrit. 2 H315 Causes skin irritation.
- Eye Irrit. 2A H319 Causes serious eye irritation.
- Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin Sens. 1 H317 May cause an allergic skin reaction.
- STOT SE 3 H335 May cause respiratory irritation.

· Label elements

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms:



GHS01 GHS04 GHS06 GHS07 GHS08

· Signal word: Danger

· Hazard statements:

H204 Fire or projection hazard.
H280 Contains gas under pressure; may explode if heated.
H301+H311 Toxic if swallowed or in contact with skin.
H330 Fatal if inhaled.

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- | | |
|----------------------------------|--|
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H317 | May cause an allergic skin reaction. |
| H335 | May cause respiratory irritation. |
| Precautionary statements: | |
| P210 | Keep away from heat/sparks/open flames/hot surfaces. No smoking. |
| P250 | Do not subject to grinding/shock/friction. |
| P260 | Do not breathe dust. |
| P284 | In case of inadequate ventilation wear respiratory protection. |
| P264 | Wash thoroughly after handling. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P270 | Do not eat, drink or smoke when using this product. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P272 | Contaminated work clothing must not be allowed out of the workplace. |
| P305+P351+P338 | If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P373 | DO NOT fight fire when fire reaches explosives. |
| P370+P380 | In case of fire: Evacuate area. |
| P302+P352 | IF ON SKIN: Wash with plenty of water. |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P342+P311 | If experiencing respiratory symptoms: Call a POISON CENTER/doctor. |
| P372 | Explosion risk in case of fire. |
| P312 | Call a POISON CENTER/doctor if you feel unwell. |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P337+P313 | If eye irritation persists: Get medical advice/attention. |
| P301+P310 | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. |
| P330 | Rinse mouth. |
| P361+P364 | Take off immediately all contaminated clothing and wash it before reuse. |
| P401 | Store in accordance with local/regional/national/international regulations. |
| P405 | Store locked up. |
| P410 | Protect from sunlight. |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P501 | Dispose of contents/container in accordance with local/regional/national/international regulations. |

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

· **Explosive Product Notice**

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PREVENTION OF ACCIDENTS IN THE USE OF EXPLOSIVES - The prevention of accidents in the use of explosives is a result of careful planning and observance of the best known practices. The explosives user must remember that he is dealing with a powerful force and that various devices and methods have been developed to assist him in directing this force. He should realize that this force, if misdirected, may either kill or injure both him and his fellow workers.

WARNING - All explosives are dangerous and must be carefully handled and used following approved safety procedures either by or under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, or ordinances. If you have any questions or doubts as to how to use any explosive product, DO NOT USE IT before consulting with your supervisor, or the manufacturer, if you do not have a supervisor. If your supervisor has any questions or doubts, he should consult the manufacturer before use.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

2698-41-1	[(2-chlorophenyl)methylene]malononitrile Acute Tox. 3, H301; Acute Tox. 2, H330 Resp. Sens. 1, H334 Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	60-80%
124-38-9	carbon dioxide Press. Gas, H280	10-20%
1309-48-4	magnesium oxide	<5%
7757-79-1	potassium nitrate Ox. Sol. 2, H272	<5%
546-93-0	Magnesium carbonate	<5%
7440-02-0	nickel Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	<1%
7440-67-7	zirconium powder (pyrophoric) Pyr. Sol. 1, H250; Water-react. 1, H260	<1%

· **Additional information:**

For the wording of the listed Hazard Statements refer to section 16.

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

· **Notable Trace Components (< 0.1% w/w)**

592-87-0	lead dithiocyanate Repr. 1A, H360; STOT RE 2, H373 Acute Tox. 4, H302; Acute Tox. 4, H332
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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Information is only applicable to product contents, and not to product as normally supplied. This information is applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions.

- **After inhalation:**

Remove victim to fresh air.

Seek immediate medical advice.

Provide oxygen treatment if affected person has difficulty breathing.

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After skin contact:**

Immediately remove any clothing soiled by the product.

Brush off loose particles from skin.

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

- **After eye contact:**

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

- **Most important symptoms and effects, both acute and delayed:**

Asthma attacks

Blast injury if mishandled.

Allergic reactions

May cause respiratory irritation.

Breathing difficulty

Coughing

Irritant to eyes.

Irritant to skin and mucous membranes.

- **Danger:**

Danger of blast or crush-type injuries.

Harmful in contact with skin.

Danger of impaired breathing.

- **Indication of any immediate medical attention and special treatment needed:**

Product may produce physical injury if mishandled. Treatment of these injuries should be based on the blast and compression effects.

Contains [(2-chlorophenyl)methylene]malononitrile. May produce an allergic reaction.

Severe allergic skin reaction, bronchial spasms and anaphylactic shock are possible.

In cases of irritation to the lungs, initial treatment with corticosteroid inhalants.

Monitor circulation, possible shock treatment.

Treat skin and mucous membrane with antihistamine and corticosteroid preparations.

If necessary oxygen respiration treatment.

Medical supervision for at least 48 hours.

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5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

DO NOT fight fire when fire reaches explosives.

Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used. If the fire reaches the cargo, withdraw and let fire burn.

- **For safety reasons unsuitable extinguishing agents:** None.

- **Special hazards arising from the substance or mixture**

Fire or projection hazard.

Pressurized container: May burst if heated.

During heating or in case of fire poisonous gases are produced.

Product may explode if burned in confined space. Individual cartridges may explode. Mass explosion of many cartridges at once is unlikely.

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

- **Additional information:**

Eliminate all ignition sources if safe to do so.

Cool endangered receptacles with water spray.

Evacuate area and fight fire from the upwind side.

Flammability Classification: (defined by 29 CFR 1910.1200) Explosive. Can explode under fire conditions.

Individual devices will randomly explode. Will not mass explode if multiple devices are involved. Burning material may produce toxic and irritating vapors. In unusual cases, shrapnel may be thrown from exploding devices under containment. See 2008 Emergency response Guidebook for further information.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:**

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective equipment. Keep unprotected persons away.

Remove persons from danger area.

Ensure adequate ventilation.

Protect from heat.

Isolate area and prevent access.

- **Environmental precautions:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Methods and material for containment and cleaning up:**

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Clean the affected area carefully; suitable cleaners are:

Warm water and cleansing agent

- **Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

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7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
Use only outdoors or in a well-ventilated area.
Handle with care. Avoid jolting, friction and impact.
Avoid breathing dust.
- **Information about protection against explosions and fires:**
Protect from heat.
Keep respiratory protective device available.
Emergency cooling must be available in case of nearby fire.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
Avoid storage near extreme heat, ignition sources or open flame.
- **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from flammable substances.
- **Further information about storage conditions:** Store in dry conditions.
- **Specific end use(s):** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

2698-41-1 [(2-chlorophenyl)methylene]malononitrile

PEL (USA)	Long-term value: 0.4 mg/m ³ , 0.05 ppm
REL (USA)	Ceiling limit value: 0.4 mg/m ³ , 0.05 ppm Skin
TLV (USA)	Ceiling limit value: 0.39 mg/m ³ , 0.05 ppm Skin
EL (Canada)	Ceiling limit value: 0.05 ppm Skin
EV (Canada)	Ceiling limit value: 0.4 mg/m ³ , 0.05 ppm Skin
LMPE (Mexico)	Ceiling limit value: 0.05 ppm A4, PIEL

124-38-9 carbon dioxide

PEL (USA)	Long-term value: 9000 mg/m ³ , 5000 ppm
REL (USA)	Short-term value: 54.000 mg/m ³ , 30.000 ppm Long-term value: 9000 mg/m ³ , 5000 ppm

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TLV (USA)	Short-term value: 54.000 mg/m ³ , 30.000 ppm Long-term value: 9000 mg/m ³ , 5000 ppm
EL (Canada)	Short-term value: 15000 ppm Long-term value: 5000 ppm
EV (Canada)	Short-term value: 54000 mg/m ³ , 30000 ppm Long-term value: 9000 mg/m ³ , 5000 ppm
LMPE (Mexico)	Short-term value: 30000 ppm Long-term value: 5000 ppm

1309-48-4 magnesium oxide

PEL (USA)	Long-term value: 15* mg/m ³ fume; *total particulate
TLV (USA)	Long-term value: 10* mg/m ³ *as inhalable fraction
EL (Canada)	Short-term value: 10** mg/m ³ Long-term value: 10* 3** mg/m ³ *inhalable fume,**respirable dust and fume
EV (Canada)	Long-term value: 10 mg/m ³ inhalable
LMPE (Mexico)	Long-term value: 10* mg/m ³ A4, *fracción respirable

546-93-0 Magnesium carbonate

PEL (USA)	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV (USA)	TLV withdrawn
EL (Canada)	Long-term value: 10* 3** mg/m ³ *total dust, **respirable fraction
EV (Canada)	Long-term value: 10 mg/m ³ total dust
LMPE (Mexico)	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³ (e)

7440-02-0 nickel

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 0.015 mg/m ³ as Ni; See Pocket Guide App. A
TLV (USA)	Long-term value: 1.5* mg/m ³ elemental, *inhalable fraction
EL (Canada)	Long-term value: 0.05 mg/m ³ ACGIH A1, IARC 2B
EV (Canada)	Long-term value: 1 mg/m ³ Inhalable fraction

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LMPE (Mexico)	Long-term value: 1.5* mg/m ³ *elemental:A5, fracción inhalable
7440-67-7 zirconium powder (pyrophoric)	
PEL (USA)	Long-term value: 5 mg/m ³ as Zr
REL (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
TLV (USA)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
EL (Canada)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as Zr
EV (Canada)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ as zirconium
LMPE (Mexico)	Short-term value: 10 mg/m ³ Long-term value: 5 mg/m ³ A4; como Zr

· **Exposure controls**

· **Engineering measures** Provide adequate ventilation.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Immediately remove all soiled and contaminated clothing.

Do not inhale dust / smoke / mist.

Avoid contact with the eyes and skin.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

· **Engineering controls:** Provide adequate ventilation.

· **Breathing equipment:**



Respiratory protection required.

Wear positive pressure NIOSH or European EN149 vapor respirators when deploying product in large quantities.

· **Protection of hands:**



Protective gloves

Wear gloves when handling deployed rounds.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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· **Eye protection:**



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· **Body protection:** Protective work clothing

· **Limitation and supervision of exposure into the environment**

No relevant information available.

· **Risk management measures**

Organizational measures should be in place for all activities involving this product.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Appearance:**

Form:

Sealed metal cylinder

Color:

According to product specification

· **Odor:**

Odorless

· **Odor threshold:**

Not determined.

· **pH-value:**

Not applicable.

· **Melting point/Melting range:**

Not determined.

· **Boiling point/Boiling range:**

Not determined.

· **Flash point:**

Not applicable.

· **Flammability (solid, gaseous):**

Fire or projection hazard.

· **Auto-ignition temperature:**

Not determined.

· **Decomposition temperature:**

Not determined.

· **Danger of explosion:**

Heating may cause an explosion.

· **Explosion limits**

Lower:

Not determined.

Upper:

Not determined.

· **Vapor pressure:**

Not applicable.

· **Density:**

Not determined.

· **Relative density:**

Not determined.

· **Vapor density:**

Not applicable.

· **Evaporation rate:**

Not applicable.

· **Solubility in / Miscibility with**

Water:

Insoluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity**

Dynamic:

Not applicable.

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Kinematic:	Not applicable.
Other information	No relevant information available.

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
Contains gas under pressure; may explode if heated.
- **Possibility of hazardous reactions:**
Fire or projection hazard.
Toxic fumes may be released if heated above the decomposition point.
Contact with acids releases toxic gases.
Acts as an oxidizing agent on organic materials such as wood, paper and fats.
Reacts with strong alkali.
- **Conditions to avoid:**
Excessive heat.
Sources of ignition, open flame, incompatible materials.
- **Incompatible materials:** Oxidizers, strong bases, strong acids
- **Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides
Sulfur oxides (SO_x)
Chlorine compounds

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

2698-41-1 [(2-chlorophenyl)methylene]malononitrile

Oral LD50 178 mg/kg (rat)

- **Primary irritant effect:**

Effects based on exposure to dusts/mists/spray/vapours released during deployment. Unused product does not possess these effects.

- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Irritating effect.
- **Sensitization:** May cause sensitisation by inhalation and skin contact.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer):**

10294-40-3 barium chromate

1

7440-02-0 nickel

2B

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592-87-0	lead dithiocyanate	2B
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· NTP (National Toxicology Program):

10294-40-3	barium chromate	K
7440-02-0	nickel	R
592-87-0	lead dithiocyanate	R

· OSHA-Ca (Occupational Safety & Health Administration):

None of the ingredients are listed.

· Probable route(s) of exposure:

Inhalation.
Skin contact.
Eye contact.

· Acute effects (acute toxicity, irritation and corrosivity):

Irritating to eyes, respiratory system and skin.
Toxic if swallowed or in contact with skin.
Fatal if inhaled.

· Repeated dose toxicity: Repeated exposures may result in skin and/or respiratory sensitivity.

· CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
· Germ cell mutagenicity: Based on available data, the classification criteria are not met.

· Carcinogenicity: Based on available data, the classification criteria are not met.

· Reproductive toxicity: Based on available data, the classification criteria are not met.

· STOT-single exposure: May cause respiratory irritation.

· STOT-repeated exposure: Based on available data, the classification criteria are not met.

· Aspiration hazard: Based on available data, the classification criteria are not met.

12 Ecological information

· Toxicity
· Aquatic toxicity

The product contains materials that are harmful to the environment.

2698-41-1 [(2-chlorophenyl)methylene]malononitrile

EC50 | 0.2-0.3 mg/kg (Oncorhynchus mykiss)

· Persistence and degradability No relevant information available.

· Bioaccumulative potential: May be accumulated in organism

· Mobility in soil: No relevant information available.

· Ecotoxicological effects:
· Remark: Harmful to fish

· Additional ecological information
· General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary.

Harmful to aquatic organisms

Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.

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· **Other adverse effects:** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. After prior treatment product has to be disposed of in an incinerator for hazardous waste adhering to the regulations pertaining to the disposal of particularly hazardous waste.

The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packagings**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**

· DOT, ADR, IMDG, IATA

UN0301

· **UN proper shipping name**

· DOT, ADR, IMDG, IATA

AMMUNITION, TEAR-PRODUCING

· **Transport hazard class(es)**

· **DOT**

· **Class**

1.4G

· **Label**

1.4G, 6.1, 8

· **ADR**

· **Class**

1.4G

· **Label**

1.4G+6.1+8

· **IMDG**

· **Class**

1.4G/6.1/8

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· Label	1.4G/6.1/8
· IATA	
  	
· Class	1.4G (6.1, 8)
· Label	1.4G (6.1, 8)
· Packing group	
· DOT	II
· Environmental hazards	Product contains environmentally hazardous substances: [(2-chlorophenyl)methylene]malononitrile
· Marine pollutant:	Yes
· Special precautions for user	Not applicable.
· EMS Number:	F-B,S-Z
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· IATA	
	Cargo Aircraft Only.

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**
- **Section 302 (extremely hazardous substances):**
- None of the ingredients are listed.
- **Section 304 (emergency release notification):**
- None of the ingredients are listed.
- **Section 355 (extremely hazardous substances):**
- None of the ingredients are listed.
- **Section 313 (Specific toxic chemical listings):**
- 7757-79-1 | potassium nitrate
- **TSCA (Toxic Substances Control Act)**
- All ingredients are listed.

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· Proposition 65 (California)
· Chemicals known to cause cancer:

10294-40-3	barium chromate
7440-02-0	nickel
592-87-0	lead dithiocyanate

· Chemicals known to cause reproductive toxicity for females:

10294-40-3	barium chromate
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· Chemicals known to cause reproductive toxicity for males:

10294-40-3	barium chromate
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· Chemicals known to cause developmental toxicity:

10294-40-3	barium chromate
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· Carcinogenic categories
· EPA (Environmental Protection Agency):

10294-40-3	barium chromate	A(inh), D(oral), K/L(inh), CBD(oral)
7778-74-7	potassium perchlorate	NL

· IARC (International Agency for Research on Cancer):

10294-40-3	barium chromate	1
7440-02-0	nickel	2B
592-87-0	lead dithiocyanate	2B

· NIOSH-Ca (National Institute for Occupational Safety and Health):

10294-40-3	barium chromate
7440-02-0	nickel

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Date of preparation / last revision 06/23/2016 / -
· Abbreviations and acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
LDLo: Lowest Lethal Dose Observed
Expl. 1.4: Explosives – Division 1.4
Press. Gas: Gases under pressure – Compressed gas
Press. Gas: Gases under pressure – Liquefied gas
Pyr. Sol. 1: Pyrophoric solids – Category 1

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Trade name: Flameless Expulsion Grenade, CS Powder

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Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1
Ox. Sol. 2: Oxidizing solids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 2: Acute toxicity – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

• Sources

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor_internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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