1 Identification

· Product identifier
  · Trade name: Tri-Chamber Flameless CS Grenade
  · Article number: 1032 (1012473)
  · Recommended use and restriction on use
    · Recommended use: Crowd Control Device
    · Restrictions on use: Contact manufacturer.

· Details of the supplier of the Safety Data Sheet
  · Manufacturer/Supplier:
    Safariland, LLC
    13386 International Parkway
    Jacksonville, FL 32218
    Customer Care (800) 347-1200
  · Emergency telephone number:
    ChemTel Inc.
    (800)255-3924, +1 (813)248-0585

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS02 Flame
  Flam. Sol. 1 H228 Flammable solid.

  GHS06 Skull and crossbones
  Acute Tox. 3 H301 Toxic if swallowed.
  Acute Tox. 3 H331 Toxic if inhaled.

  GHS08 Health hazard
  Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

  GHS07
  Acute Tox. 4 H312 Harmful in contact with skin.
  Skin Irrit. 2 H315 Causes skin irritation.
  Eye Irrit. 2A H319 Causes serious eye irritation.
  Skin Sens. 1 H317 May cause an allergic skin reaction.
  STOT SE 3 H335 May cause respiratory irritation.

· Additional information:
  There are no other hazards not otherwise classified that have been identified.
  0 percent of the mixture consists of ingredient(s) of unknown toxicity.

(Contd. on page 2)
· Label elements
  · GHS label elements
  The product is classified and labeled according to the Globally Harmonized System (GHS).
  · Hazard pictograms
  GHS02 GHS06 GHS07 GHS08
  · Signal word Danger
  · Hazard-determining components of labeling:
    [(2-chlorophenyl)methylene]malononitrile
    potassium chlorate
    diphenylamine
    potassium perchlorate
  · Hazard statements
    H228 Flammable solid.
    H301+H331 Toxic if swallowed or if inhaled.
    H312 Harmful in contact with skin.
    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, and hot surfaces. - No smoking.
    P260 Do not breathe dust/fume/gas/mist/vapors/spray.
    P284 Wear respiratory protection.
    P264 Wash thoroughly after handling.
    P280 Wear protective gloves / 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.
    P301+P310 If swallowed: Immediately call a poison center/doctor.
    P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
    P320 Specific treatment is urgent (see on this label).
    P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.
    P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
    P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
    P330 Rinse mouth.
    P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
    P302+P352 If on skin: Wash with plenty of water.
    P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
    P405 Store locked up.
    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.
Trade name: Tri-Chamber Flameless CS Grenade

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 4
    - Fire = 0
    - Reactivity = 4
    The substance possesses oxidizing properties.
  - HMIS-ratings (scale 0 - 4)
    - Health = *3
    - Fire = 0
    - Reactivity = 4
    * - Indicates a long term health hazard from repeated or prolonged exposures.

- Other hazards
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.

### 3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description:
  Product will contain various combinations of the following substances. Not all substances will be in each product.
  Mixture of the substances listed below with nonhazardous additions.

#### Dangerous components:

<table>
<thead>
<tr>
<th>UN/INNo</th>
<th>Description</th>
<th>Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2698-41-1</td>
<td>[(2-chlorophenyl)methylene]malononitrile</td>
<td>Acute Tox. 3, H301; Acute Tox. 2, H330; Resp. Sens. 1, H334</td>
</tr>
<tr>
<td>9004-70-0</td>
<td>Nitrocellulose, colloided, granular</td>
<td>Expl. 1.1, H201</td>
</tr>
<tr>
<td>3811-04-9</td>
<td>potassium chlorate</td>
<td>Ox. Sol. 1, H271</td>
</tr>
<tr>
<td>57-50-1</td>
<td>sucrose, pure</td>
<td></td>
</tr>
<tr>
<td>598-62-9</td>
<td>manganese carbonate</td>
<td></td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td>Ox. Sol. 2, H272</td>
</tr>
<tr>
<td>7440-50-8</td>
<td>copper</td>
<td></td>
</tr>
<tr>
<td>1309-48-4</td>
<td>magnesium oxide</td>
<td></td>
</tr>
<tr>
<td>7440-66-6</td>
<td>zinc metal</td>
<td></td>
</tr>
</tbody>
</table>
### Trade name: Tri-Chamber Flameless CS Grenade

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>Hazard Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>7778-74-7</td>
<td>potassium perchlorate</td>
<td>Ox. Sol. 1, H271; Acute Tox. 4, H302</td>
</tr>
<tr>
<td>7704-34-9</td>
<td>sulfur</td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td>592-87-0</td>
<td>lead dithiocyanate</td>
<td>Carc. 1B, H350; Repr. 1A, H360; STOT RE 2, H373</td>
</tr>
<tr>
<td>122-39-4</td>
<td>diphenylamine</td>
<td>Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; STOT RE 2, H373</td>
</tr>
<tr>
<td>557-04-0</td>
<td>magnesium distearate, pure</td>
<td></td>
</tr>
<tr>
<td>10294-40-3</td>
<td>barium chromate</td>
<td>Carc. 1A, H350; Acute Tox. 4, H302; Acute Tox. 4, H332</td>
</tr>
<tr>
<td>69012-64-2</td>
<td>Silica-Amorphous Silica fume</td>
<td>≤ 2.5%</td>
</tr>
<tr>
<td>1317-61-9</td>
<td>triiron tetraoxide</td>
<td></td>
</tr>
<tr>
<td>7440-21-3</td>
<td>silicon</td>
<td>Flam. Sol. 2, H228</td>
</tr>
<tr>
<td>7429-90-5</td>
<td>aluminium powder (pyrophoric)</td>
<td>Pyr. Sol. 1, H250; Water-react. 2, H261</td>
</tr>
<tr>
<td>16291-96-6</td>
<td>charcoal</td>
<td></td>
</tr>
</tbody>
</table>

**Additional information:**
For the listed ingredient(s), the identity and exact percentage(s) are being withheld as a trade secret.

**Notable Trace Components (≤ 0.1% w/w)**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>Hazard Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-97-6</td>
<td>lead chromate</td>
<td>Carc. 1B, H350; Repr. 1A, H360; STOT RE 2, H373</td>
</tr>
</tbody>
</table>

### 4 First-aid measures

- **Description of first aid measures**
- **General information:**
  Immediately remove any clothing soiled by the product.
  Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
  Supply fresh air.
  Seek immediate medical advice.
  In case of irregular breathing or respiratory arrest provide artificial respiration.
  Provide oxygen treatment if affected person has difficulty breathing.
- **After skin contact:**
  Immediately rinse with water.
  If skin irritation continues, consult a doctor.
- **After eye contact:**
  Protect unharmed eye.
  Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing:**
- Unlikely route of exposure.
- Rinse out mouth and then drink plenty of water.
- Do not induce vomiting; immediately call for medical help.

**Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
  - Asthma attacks
  - Blast injury if mishandled.
  - Dizziness
  - Irritant to eyes.
  - Irritant to skin and mucous membranes.
  - Breathing difficulty
  - Coughing
  - Allergic reactions
  - Disorientation
- **Danger**
  - Danger of blast or crush-type injuries.
  - Danger of pulmonary edema.
  - Danger of disturbed cardiac rhythm.
  - Danger of convulsion.
  - Danger of impaired breathing.
  - Danger of cerebral edema.
- **Indication of any immediate medical attention and special treatment needed**
  - Severe allergic skin reaction, bronchial spasms and anaphylactic shock are possible.
  - If necessary oxygen respiration treatment.
  - Contains lead chromate.
  - Later observation for pneumonia and pulmonary edema.
  - Product may produce physical injury if mishandled. Treatment of these injuries should be based on the blast and compression effects.

### 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**
  - 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.
### Trade name: Tri-Chamber Flameless CS Grenade

- **Additional information**
  - Evacuate area and fight fire from the upwind side.
  - Cool endangered receptacles with water spray.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Use respiratory protective device against the effects of fumes/dust/aerosol.
  - Isolate area and prevent access.
  - Keep people at a distance and stay upwind.
  - Wear protective equipment. Keep unprotected persons away.
  - Remove persons from danger area.
  - Ensure adequate ventilation.
  - Protect from heat.
  - Keep away from ignition sources.
- **Environmental precautions:**
  - Do not allow to enter sewers/surface or ground water.
  - Suppress gases/fumes/haze with water spray.
- **Methods and material for containment and cleaning up:**
  - Pick up mechanically.
  - Send for recovery or disposal in suitable receptacles.
  - Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
  - Handle with care. Avoid jolting, friction and impact.
  - Keep away from heat and direct sunlight.
  - Use only in well ventilated areas.
- **Information about protection against explosions and fires:**
  - Prevent impact and friction.
  - Keep respiratory protective device available.
  - Emergency cooling must be available in case of nearby fire.
  - Protect from heat.
  - Keep ignition sources away - Do not smoke.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
  - **Requirements to be met by storerooms and receptacles:**
    - Provide ventilation for receptacles.
    - Avoid storage near extreme heat, ignition sources or open flame.
  - **Information about storage in one common storage facility:**
    - Store away from foodstuffs.
8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit values for Workplace Exposure (mg/m³, ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2698-41-1 [(2-chlorophenyl)methylene]malononitrile</td>
<td></td>
</tr>
<tr>
<td>PEL (USA)</td>
<td>Long-term value: 0.4 mg/m³, 0.05 ppm</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Ceiling limit value: 0.4 mg/m³, 0.05 ppm</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Ceiling limit value: 0.39 mg/m³, 0.05 ppm</td>
</tr>
<tr>
<td>EL (Canada)</td>
<td>Ceiling limit value: 0.05 ppm</td>
</tr>
<tr>
<td>EV (Canada)</td>
<td>Ceiling limit value: 0.4 mg/m³, 0.05 ppm</td>
</tr>
<tr>
<td>LMPE (Mexico)</td>
<td>Ceiling limit value: 0.05 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>57-50-1 sucrose, pure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>Long-term value: 5 mg/m³ ** as Mn</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>598-62-9 manganese carbonate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>Ceiling limit value: 5 mg/m³ ** as Mn</td>
</tr>
</tbody>
</table>

(Contd. on page 8)
Trade name: Tri-Chamber Flameless CS Grenade

<table>
<thead>
<tr>
<th>Substance</th>
<th>REL (USA)</th>
<th>TLV (USA)</th>
<th>EL (Canada)</th>
<th>LMPE (Mexico)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1309-48-4 magnesium oxide</td>
<td>Short-term value: 3 mg/m³</td>
<td>Long-term value: 0.02* 0.1* mg/m³</td>
<td>Long-term value: 0.2 mg/m³</td>
<td>Long-term value: 0.2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>REL (USA)</td>
<td>Long-term value: 1 mg/m³</td>
<td>as Mn</td>
<td>as Mn; *respirable **inhalable fraction</td>
</tr>
<tr>
<td></td>
<td>TLV (USA)</td>
<td>Long-term value: 0.02* 0.1* mg/m³</td>
<td>as Mn; *respirable **inhalable fraction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL (Canada)</td>
<td>Long-term value: 0.2 mg/m³</td>
<td>as Mn; R</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LMPE (Mexico)</td>
<td>Long-term value: 0.2 mg/m³</td>
<td>como Mn</td>
<td></td>
</tr>
</tbody>
</table>

1309-37-1 diiron trioxide / iron (III) oxide

<table>
<thead>
<tr>
<th>Substance</th>
<th>REL (USA)</th>
<th>PEL (USA)</th>
<th>TLV (USA)</th>
<th>EL (Canada)</th>
<th>EV (Canada)</th>
<th>LMPE (Mexico)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1309-37-1 diiron trioxide / iron (III) oxide</td>
<td>Short-term value: 5 mg/m³</td>
<td>Long-term value: 10* 15* 5** 3*** mg/m³</td>
<td>Long-term value: 10* 15* 5** 3*** mg/m³</td>
<td>Long-term value: 10* 15* 5** 3*** mg/m³</td>
<td>Long-term value: 10* 15* 5** 3*** mg/m³</td>
<td>Long-term value: 10* 15* 5** 3*** mg/m³</td>
</tr>
<tr>
<td></td>
<td>REL (USA)</td>
<td>Long-term value: 5 mg/m³</td>
<td>as Mn</td>
<td>as Mn; R</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PEL (USA)</td>
<td>Long-term value: 5 mg/m³</td>
<td>as Mn; R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TLV (USA)</td>
<td>Long-term value: 5* mg/m³</td>
<td>as Mn; R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL (Canada)</td>
<td>Short-term value: 10** mg/m³</td>
<td>Long-term value: 10* 3** mg/m³</td>
<td>*inhalable fume; **respirable dust and fume</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EV (Canada)</td>
<td>Long-term value: 10 mg/m³</td>
<td>as Mn; R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LMPE (Mexico)</td>
<td>Long-term value: 10 mg/m³</td>
<td>as Mn; R</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7440-50-8 copper

<table>
<thead>
<tr>
<th>Substance</th>
<th>REL (USA)</th>
<th>PEL (USA)</th>
<th>TLV (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-50-8 copper</td>
<td>Long-term value: 1* 0.1** 0.2*** mg/m³</td>
<td>Long-term value: 1* 0.1** 0.2*** mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REL (USA)</td>
<td>Long-term value: 1* 0.1** 0.2*** mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PEL (USA)</td>
<td>Long-term value: 1* 0.1** 0.2*** mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TLV (USA)</td>
<td>Long-term value: 1* 0.1** 0.2*** mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

(Contd. of page 7) (Contd. on page 9)
### Trade name: Tri-Chamber Flameless CS Grenade

<table>
<thead>
<tr>
<th></th>
<th>EL (Canada)</th>
<th>EV (Canada)</th>
<th>LMPE (Mexico)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term value: 1* 0.2** mg/m³ dusts and mists; **fume, as Cu</td>
<td>Long-term value: 0.2* 1** mg/m³ as copper, **fume;**dust and mists</td>
<td>Long-term value: 0.2* 1** mg/m³ dusts and mists; **fume, as Cu</td>
</tr>
<tr>
<td></td>
<td>EV (Canada)</td>
<td>Long-term value: 10* 3** mg/m³ total dust;**respirable fraction</td>
<td>Long-term value: 10 mg/m³ total dust</td>
</tr>
<tr>
<td></td>
<td>REL (Canada)</td>
<td>Long-term value: 10* 5** mg/m³ total dust **respirable fraction</td>
<td>Long-term value: 10 mg/m³ total dust</td>
</tr>
<tr>
<td></td>
<td>PEL (USA)</td>
<td>REL (USA)</td>
<td>TLV (USA)</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 15* 5** mg/m³ total dust **respirable fraction</td>
<td>Long-term value: 10* 5** mg/m³ total dust **respirable fraction</td>
<td>TLV withdrawn</td>
</tr>
<tr>
<td></td>
<td>EL (Canada)</td>
<td>EV (Canada)</td>
<td>LMPE (Mexico)</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 10* 3** mg/m³ total dust;**respirable fraction</td>
<td>Long-term value: 10 mg/m³ total dust</td>
<td>Short-term value: 10 mg/m³ total dust</td>
</tr>
<tr>
<td></td>
<td>LMPE (Mexico)</td>
<td></td>
<td>Short-term value: 20 mg/m³ long-term value: 10 mg/m³ (e)</td>
</tr>
</tbody>
</table>

### 7440-21-3 silicon

<table>
<thead>
<tr>
<th></th>
<th>PEL (USA)</th>
<th>REL (USA)</th>
<th>TLV (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term value: 15* 5** mg/m³ total dust **respirable fraction</td>
<td>Long-term value: 10* 5** mg/m³ total dust **respirable fraction</td>
<td>TLV withdrawn</td>
</tr>
<tr>
<td></td>
<td>EL (Canada)</td>
<td>EV (Canada)</td>
<td>LMPE (Mexico)</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 10* 3** mg/m³ total dust;**respirable fraction</td>
<td>Long-term value: 10 mg/m³ total dust</td>
<td>Short-term value: 10 mg/m³ total dust</td>
</tr>
<tr>
<td></td>
<td>LMPE (Mexico)</td>
<td></td>
<td>Short-term value: 20 mg/m³ long-term value: 10 mg/m³ (e)</td>
</tr>
</tbody>
</table>

### 7440-67-7 zirconium powder (pyrophoric)

<table>
<thead>
<tr>
<th></th>
<th>PEL (USA)</th>
<th>REL (USA)</th>
<th>TLV (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term value: 5 mg/m³ as Zr</td>
<td>Short-term value: 10 mg/m³ as Zr</td>
<td>Short-term value: 10 mg/m³ as Zr</td>
</tr>
<tr>
<td></td>
<td>REL (USA)</td>
<td>Long-term value: 5 mg/m³ as Zr</td>
<td>Long-term value: 5 mg/m³ as Zr</td>
</tr>
<tr>
<td></td>
<td>TLV (USA)</td>
<td>Short-term value: 10 mg/m³ as Zr</td>
<td>Short-term value: 10 mg/m³ as Zr</td>
</tr>
<tr>
<td></td>
<td>EL (Canada)</td>
<td>EV (Canada)</td>
<td>LMPE (Mexico)</td>
</tr>
<tr>
<td></td>
<td>Short-term value: 10 mg/m³ as Zr</td>
<td>Short-term value: 10 mg/m³ as Zr</td>
<td>Short-term value: 10 mg/m³ as Zr</td>
</tr>
<tr>
<td></td>
<td>EV (Canada)</td>
<td>Short-term value: 10 mg/m³ as zirconium</td>
<td>Short-term value: 10 mg/m³ as Zr</td>
</tr>
<tr>
<td></td>
<td>LMPE (Mexico)</td>
<td></td>
<td>Short-term value: 10 mg/m³ long-term value: 5 mg/m³ A4; como Zr</td>
</tr>
</tbody>
</table>

### 7429-90-5 aluminium powder (pyrophoric)

<table>
<thead>
<tr>
<th></th>
<th>PEL (USA)</th>
<th>REL (USA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term value: 15* 15** mg/m³ total dust;** Respirable fraction</td>
<td>Long-term value: 10* 5** mg/m³ total dust;** Respirable/pyro powd./welding f.</td>
</tr>
<tr>
<td></td>
<td>REL (USA)</td>
<td>Long-term value: 10* 5** mg/m³ total dust;** Respirable/pyro powd./welding f.</td>
</tr>
</tbody>
</table>

(Contd. on page 10)
## Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)

### Trade name: Tri-Chamber Flameless CS Grenade

<table>
<thead>
<tr>
<th>Substance</th>
<th>TLV (USA)</th>
<th>EL (Canada)</th>
<th>EV (Canada)</th>
<th>LMPE (Mexico)</th>
</tr>
</thead>
<tbody>
<tr>
<td>592-87-0 lead dithiocyanate</td>
<td>Long-term value: 1* mg/m³ as Al; *as respirable fraction</td>
<td>Long-term value: 1.0 mg/m³ respirable, as Al</td>
<td>Long-term value: 5 mg/m³ aluminium-containing (as aluminium)</td>
<td>Long-term value: 1* mg/m³ A4, *fracción respirable</td>
</tr>
<tr>
<td>122-39-4 diphenylamine</td>
<td>Long-term value: 10 mg/m³</td>
<td>Long-term value: 10 mg/m³</td>
<td>Long-term value: 10 mg/m³</td>
<td>Long-term value: 10 mg/m³ A4</td>
</tr>
<tr>
<td>557-04-0 magnesium distearate, pure</td>
<td>Long-term value: 10 mg/m³</td>
<td>Long-term value: 10 mg/m³</td>
<td>Long-term value: 10 mg/m³ A4</td>
<td></td>
</tr>
<tr>
<td>10294-40-3 barium chromate</td>
<td>Long-term value: 0.005* mg/m³ as Cr(VI); Ceiling limit value: 0.1** mg/m³ as CrO₃; see 29 CFR 1910.1026</td>
<td>Long-term value: 0.0002 mg/m³ as Cr; See Pocket Guide Apps. A and C</td>
<td>Long-term value: 0.01 mg/m³ as Cr</td>
<td>Long-term value: 0.01 mg/m³ as Cr; ACGIH A1, IARC 1</td>
</tr>
<tr>
<td>69012-64-2 Silica-Amorphous Silica fume</td>
<td>TLV withdrawn</td>
<td>Long-term value: 4* 1.5** mg/m³ fume *total; **respirable</td>
<td>Long-term value: 2 mg/m³ respirable</td>
<td></td>
</tr>
</tbody>
</table>

(Contd. on page 11)
Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)

Printing date July 13, 2015
Reviewed on July 13, 2015

Trade name: Tri-Chamber Flameless CS Grenade

<table>
<thead>
<tr>
<th>LMPE (Mexico)</th>
<th>Long-term value: 2 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>(j)</td>
<td></td>
</tr>
</tbody>
</table>

- **Ingredients with biological limit values:**

<table>
<thead>
<tr>
<th>10294-40-3 barium chromate</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEI (USA) 25 µg/L</td>
</tr>
<tr>
<td>Medium: urine</td>
</tr>
<tr>
<td>Time: end of shift at end of workweek</td>
</tr>
<tr>
<td>Parameter: Total chromium (fume)</td>
</tr>
<tr>
<td>10 µg/L</td>
</tr>
<tr>
<td>Medium: urine</td>
</tr>
<tr>
<td>Time: increase during shift</td>
</tr>
<tr>
<td>Parameter: Total chromium (fume)</td>
</tr>
</tbody>
</table>

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

  - **General protective and hygienic measures:**
    The usual precautionary measures for handling chemicals should be followed.
    Keep away from foodstuffs, beverages and feed.
    Avoid close or long term contact with the skin.
    Avoid contact with the eyes.
    Do not inhale dust / smoke / mist.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Do not inhale gases / fumes / aerosols.

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

- **Breathing equipment:**

  Combined Organic Vapor and Particulate Respirator is recommended for use during all processing activities.
  Wear positive pressure NIOSH or European EN149 vapor respirators when deploying product in large quantities.
  Respiratory protection required.

- **Protection of hands:**

  Protective gloves

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

- **Material of gloves**

  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be
checked prior to the application.

- **Penetration time of glove material**
The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**
  - Safety glasses

- **Body protection:** Protective work clothing

**Limitation and supervision of exposure into the environment**
No further relevant information available.

**Risk management measures**
See Section 7 for additional information.
Organizational measures should be in place for all activities involving this product.

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
  - **Appearance:**
    - Form: Solid material
    - Color: Grey
  - Odor: Characteristic
  - Odor threshold: Not determined.
  - pH-value: Not applicable.

- **Change in condition**
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: Undetermined.

- **Flash point:** Not applicable.

- **Flammability (solid, gaseous):** Not determined.

- **Auto-ignition temperature:** Not determined.

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not self-igniting.

- **Danger of explosion:** Extreme risk of explosion by shock, friction, fire or other sources of ignition.

- **Explosion limits:**
  - Lower: Not determined.
  - Upper: Not determined.

- **Vapor pressure:** Not applicable.

- **Density:** Not determined.

- **Relative density**
  - Not determined.

- **Vapour density**
  - Not applicable.
Trade name: Tri-Chamber Flameless CS Grenade

- Evaporation rate: Not applicable.
- Solubility in / Miscibility with Water: Insoluble.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.
- Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability
  - Thermal decomposition / conditions to be avoided:
    No decomposition if used and stored according to specifications.
  - Possibility of hazardous reactions
    Flammable solid.
    Contact with acids releases toxic gases.
    Toxic fumes may be released if heated above the decomposition point.
    Can react violently with oxygen rich (oxidizing) material. Danger of Explosion.
    Strong exothermic reaction with acids.
    Develops toxic gases / fumes.
- Conditions to avoid
  - Keep ignition sources away - Do not smoke.
  - Store away from oxidizing agents.
  - Keep away from heat and direct sunlight.
  - Cartridge may detonate if case is punctured or severely damaged.
- Incompatible materials: Contact with acids liberates toxic gas.
- Hazardous decomposition products:
  - Carbon monoxide and carbon dioxide
  - Hydrocarbons
  - Lead oxide vapor
  - Barium oxide vapor
  - Nitrogen oxides (NOx)
  - Chlorine compounds
  - Poisonous gases/vapors
  - Irritant gases/vapors

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)
Trade name: Tri-Chamber Flameless CS Grenade

3811-04-9 potassium chlorate
Oral LD50 1870 mg/kg (rat)

122-39-4 diphenylamine
Oral LD50 1120 mg/kg (rat)

7758-97-6 lead chromate
Oral LD50 12000 mg/kg (mouse)

• Primary irritant effect:
  • on the skin: Irritant to skin and mucous membranes.
  • on the eye: Strong irritant with the danger of severe eye injury.
  • Additional toxicological information: Toxic and/or corrosive effects may be delayed up to 24 hours.

• Carcinogenic categories
  • NTP (National Toxicology Program)
    592-87-0 lead dithiocyanate R
    10294-40-3 barium chromate K
  • OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is listed.

• Probable Routes of Exposure
  Ingestion.
  Inhalation.
  Eye contact.
  Skin contact.

• Acute effects (acute toxicity, irritation and corrosivity):
  Irritating to eyes, respiratory system and skin.
  Harmful in contact with skin.
  Toxic if swallowed or if inhaled.
  May cause sensitisation by inhalation and skin contact.

• Repeated Dose Toxicity:
  Repeated exposures may result in skin and/or respiratory sensitivity.
  May cause damage to organs through prolonged or repeated exposure.

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

12 Ecological information

• Toxicity
  • Aquatic toxicity:
    Toxic for aquatic organisms
    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 The product is partially biodegradable. Significant residuals remain.

• Behavior in environmental systems:
  • Bioaccumulative potential May be accumulated in organism
  • Mobility in soil No further relevant information available.
Trade name: Tri-Chamber Flameless CS Grenade

- Ecotoxicological effects:
  - Remark: Toxic for fish
- Additional ecological information:
  - General notes:
    This statement was deduced from the properties of the single components.
    The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary.
    Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
    Also poisonous for fish and plankton in water bodies.
    Toxic for aquatic organisms
    Do not allow product to reach ground water, water course or sewage system.
    Danger to drinking water if even small quantities leak into the ground.
  - Other adverse effects No further 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.
    Hand over to hazardous waste disposers.
    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 UN1700
- UN proper shipping name
  - DOT Tear gas candles
  - ADR 1700 TEAR GAS CANDLES
  - IMDG, IATA TEAR GAS CANDLES
- Transport hazard class(es)
  - DOT
    - Class 6.1 Toxic substances
Trade name: Tri-Chamber Flameless CS Grenade

- **Label**: 6.1, 4.1
  - **ADR**
    - **Class**: 6.1 (TF3) Toxic substances
    - **Label**: 6.1+4.1
  - **IMDG**
    - **Class**: 6.1 Toxic substances
    - **Label**: 6.1/4.1
  - **IATA**
    - **Class**: 6.1 Toxic substances
    - **Label**: 6.1 (4.1)
    - **Packing group**: II
    - **DOT, ADR, IMDG, IATA**: Not applicable.
    - **Environmental hazards**: Not applicable.
    - **Special precautions for user**: Warning: Toxic substances
    - **Danger code (Kemler)**: -
    - **EMS Number**: F-A,S-G
    - **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**: Not applicable.
    - **Transport/Additional information**:
      - **ADR**
        - **Excepted quantities (EQ)**: Code: E0
          - Not permitted as Excepted Quantity
        - **UN "Model Regulation"**: UN1700, Tear gas candles, 6.1 (4.1), II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - United States (USA)
  - SARA
    - **Section 355 (extremely hazardous substances)**:
      - None of the ingredients is listed.

(Contd. on page 17)
### Safety Data Sheet
**acc. to OSHA HCS (29 CFR 1910.1200)**

**Printing date:** July 13, 2015  
**Reviewed on:** July 13, 2015

**Trade name:** Tri-Chamber Flameless CS Grenade

---

### Section 313 (Specific toxic chemical listings):
- 598-62-9 manganese carbonate  
- 7757-79-1 potassium nitrate  
- 7440-50-8 copper  
- 7440-66-6 zinc metal  
- 7429-90-5 aluminium powder (pyrophoric)

### TSCA (Toxic Substances Control Act):
All ingredients are listed.

### Proposition 65 (California)
- **Chemicals known to cause cancer:** Contains trace quantities of substances known to the State of California to cause cancer.
  - 592-87-0 lead dithiocyanate  
  - 10294-40-3 barium chromate  
  - 7758-97-6 lead chromate

- **Chemicals known to cause reproductive toxicity for females:** Present in trace quantities.
  - 10294-40-3 barium chromate  
  - 7758-97-6 lead chromate

- **Chemicals known to cause reproductive toxicity for males:** Present in trace quantities.
  - 10294-40-3 barium chromate  
  - 7758-97-6 lead chromate

- **Chemicals known to cause developmental toxicity:** Present in trace quantities.
  - 10294-40-3 barium chromate  
  - 7758-97-6 lead chromate

### Carcinogenic categories
- **EPA (Environmental Protection Agency)**
  - 598-62-9 manganese carbonate  
    - D
  - 7440-50-8 copper  
    - D  
  - 7440-66-6 zinc metal  
    - D, I, II  
  - 7778-74-7 potassium perchlorate  
    - NL  
  - 10294-40-3 barium chromate  
    - A(inh), D(oral), K/L(inh), CBD(oral)

- **IARC (International Agency for Research on Cancer)**
  - 1309-37-1 diiron trioxide / iron (III) oxide  
    - 3
  - 10294-40-3 barium chromate  
    - 1
  - 69012-64-2 Silica-Amorphous Silica fume  
    - 3

- **TLV (Threshold Limit Value established by ACGIH)**
  - 2698-41-1 [(2-chlorophenyl)methylene]malononitrile  
    - A4
  - 57-50-1 sucrose, pure  
    - A4
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1309-48-4</td>
<td>magnesium oxide</td>
<td>A4</td>
<td>1309-37-1</td>
<td>diiron trioxide / iron (III) oxide</td>
<td>A4</td>
</tr>
<tr>
<td>1309-37-1</td>
<td>diiron trioxide / iron (III) oxide</td>
<td>A4</td>
<td>7440-67-7</td>
<td>zirconium powder (pyrophoric)</td>
<td>A4</td>
</tr>
<tr>
<td>7429-90-5</td>
<td>aluminium powder (pyrophoric)</td>
<td>A4</td>
<td>122-39-4</td>
<td>diphenylamine</td>
<td>A4</td>
</tr>
<tr>
<td>10294-40-3</td>
<td>barium chromate</td>
<td>A1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· NIOSH-Ca (National Institute for Occupational Safety and Health)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10294-40-3</td>
<td>barium chromate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· State Right to Know Listings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Canadian substance listings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Canadian Domestic Substances List (DSL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9004-70-0</td>
<td>Nitrocellulose, colloided, granular</td>
<td></td>
<td>3811-04-9</td>
<td>potassium chlorate</td>
<td></td>
</tr>
<tr>
<td>57-50-1</td>
<td>sucrose, pure</td>
<td></td>
<td>598-62-9</td>
<td>manganese carbonate</td>
<td></td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td></td>
<td>1309-48-4</td>
<td>magnesium oxide</td>
<td></td>
</tr>
<tr>
<td>1309-37-1</td>
<td>diiron trioxide / iron (III) oxide</td>
<td></td>
<td>7440-50-8</td>
<td>copper</td>
<td></td>
</tr>
<tr>
<td>7440-32-6</td>
<td>titanium</td>
<td></td>
<td>1317-61-9</td>
<td>triiron tetraoxide</td>
<td></td>
</tr>
<tr>
<td>7440-66-6</td>
<td>zinc metal</td>
<td></td>
<td>7440-21-3</td>
<td>silicon</td>
<td></td>
</tr>
<tr>
<td>7440-67-7</td>
<td>zirconium powder (pyrophoric)</td>
<td></td>
<td>7440-44-0</td>
<td>carbon</td>
<td></td>
</tr>
<tr>
<td>7429-90-5</td>
<td>aluminium powder (pyrophoric)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Canadian Ingredient Disclosure list (limit 0.1%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>598-62-9</td>
<td>manganese carbonate</td>
<td></td>
<td>122-39-4</td>
<td>diphenylamine</td>
<td></td>
</tr>
<tr>
<td>10294-40-3</td>
<td>barium chromate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Canadian Ingredient Disclosure list (limit 1%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2698-41-1</td>
<td>[(2-chlorophenyl)methylene]malononitrile</td>
<td></td>
<td>1309-48-4</td>
<td>magnesium oxide</td>
<td></td>
</tr>
<tr>
<td>1309-37-1</td>
<td>diiron trioxide / iron (III) oxide</td>
<td></td>
<td>7440-50-8</td>
<td>copper</td>
<td></td>
</tr>
<tr>
<td>7429-90-5</td>
<td>aluminium powder (pyrophoric)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Contd. of page 19)
Trade name: Tri-Chamber Flameless CS Grenade

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 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**: July 13, 2015 / -

· **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (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
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - DNEL: Derived No-Effect Level (REACH)
  - PNEC: Predicted No-Effect Concentration (REACH)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - SVHC: Substances of Very High Concern
  - vPvB: very Persistent and very Bioaccumulative
  - Expl. 1.1: Explosives, Division 1.1
  - Flam. Sol. 1: Flammable solids, Hazard Category 1
  - Flam. Sol. 2: Flammable solids, Hazard Category 2
  - Pyr. Sol. 1: Pyrophoric Solids, Hazard Category 1
  - Water-react. 2: Substances and Mixtures which, in contact with water, emit flammable gases, Hazard Category 2
  - Ox. Sol. 1: Oxidising Solids, Hazard Category 1
  - Ox. Sol. 2: Oxidising Solids, Hazard Category 2
  - Acute Tox. 3: Acute toxicity, Hazard Category 3
  - Acute Tox. 4: Acute toxicity, Hazard Category 4
  - Acute Tox. 2: Acute toxicity, Hazard Category 2
  - Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
  - Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1
  - Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
  - Carc. 1A: Carcinogenicity, Hazard Category 1A
  - Carc. 1B: Carcinogenicity, Hazard Category 1B
  - Repr. 1A: Reproductive toxicity, Hazard Category 1A
  - STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
  - STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2

· **Sources**
  - SDS Prepared by: ChemTel Inc.
  - 1305 North Florida Avenue
  - Tampa, Florida USA 33602-2902
  - Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
  - Website: www.chemtelinc.com