

**1 Identification**

- **Product identifier**
- **Trade name: DX-Cartridge**
- **Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture** Cartridges for technical purpose
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Hilti (Canada) Corp.  
2360 Meadowpine Boulevard  
Mississauga, Ontario L5N 6S2  
Phone: (800) 363-4458  
Fax: (800) 363-4459
- **Information department:**  
df-hse@hilti.com  
see section 16
- **Emergency telephone number:**  
Chem-Trec  
Tel.: 1 800 424 9300 (USA, PR, Virgin Islands, Canada)  
Tel.: 703 527 3887 (Other countries)

**2 Hazard(s) identification**

- **Classification of the substance or mixture**  
The dismantling of the article is prohibited.  
This article contains hazardous substances or preparations not intended to be released under normal or reasonably foreseeable conditions of use.  
Expl. 1.4 H204 Fire or projection hazard.
- **Additional information:**  
Category of the pyrotechnic article: other pyrotechnic articles Cat. P1  
(BAM EC-Type-Examination Certificate No. 0589.PYR.3800/12 or 0589.PYR.3804/12 respectively)

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- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS01

- **Signal word** Warning
- **Hazard statements**  
H204 Fire or projection hazard.
- **Precautionary statements**  
P210 Keep away from heat. - No smoking.  
P250 Do not subject to grinding/shock/friction.  
P280 Wear eye protection / face protection.
- **Hazard description:**
- **WHMIS classification** F - Dangerously reactive material
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**3 Composition/information on ingredients**

- **Chemical characterization: Mixtures**
- **Description:**  
Mixture consisting of the following components.

(Contd. on page 2)

**Trade name: DX-Cartridge**

(Contd. of page 1)

max. net explosives weight each cartridge in mg:

Caliber 6.8/11 (cal .27 short) white: 130; brown: 140; green: 160; yellow: 180; red: 230; black: 260

Caliber 6.8/18 (cal .27 long) green: 190; yellow: 220; blue: 300; red: 330; black: 410

Caliber 6.3/10 (cal. 25) green 120; yellow: 190; red: 230; black: 250

Caliber 5.6/16 (cal .22) grey: 105; brown: 120; green: 175; yellow: 210; red: 270

**Dangerous components:**

Within the cartridges the explosive ingredients (gun powder and priming composition) are hermetically separated from the environment. They will be only opened with effort and under destruction of the article.

Propellant powder: Single base powder, containing glyceroltrinitrate

Mass per cartridge: essentially dependent on the required power (100-400 mg)

Priming composition: SINOXID (initiating explosive) Mass per cartridge: 22-33 mg in the mean.

55-63-0	glycerol trinitrate Unst. Expl., H200; Flam. Liq. 2, H225; Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; STOT RE 2, H373; Aquatic Chronic 2, H411	3-<10%
15245-44-0	lead 2,4,6-trinitroresorcinoxide Unst. Expl., H200; Repr. 1A, H360; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H332	0.1-<5%
122-39-4	diphenylamine Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0-1%
10022-31-8	barium nitrate Acute Tox. 4, H302; Acute Tox. 4, H332	0-<5%

**SVHC**

15245-44-0 | lead 2,4,6-trinitroresorcinoxide

**Additional information**

Exposed propellant powder outside a cartridge is harmful if swallowed and highly flammable; without tamping no explosion risk.

Packed safety cartridges don't represent a significant risk.

In case of reaction no dangerous fragments or projectiles will be formed.

Mechanical or thermal attempts to expose the primer composition lead to an immediate reaction of the dangerous ingredients.

For the wording of the listed risk phrases refer to section 16.

**4 First-aid measures**
**Description of first aid measures**
**General information** First aid measures only required by release of ingredients or generation of decomposition products.

**After inhalation** Take affected persons into fresh air and keep quiet.

**After skin contact** Immediately wash with water and soap and rinse thoroughly.

**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing**

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** No further relevant information available.

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

Monitor circulation, possible shock treatment.

If necessary oxygen respiration treatment

If blue colouring appears (lips, ear-lobes, finger-nails), give oxygen treatment as quickly as possible.

In cases of irritation to the lungs, initial treatment with Dexamethason metered aerosol.

**5 Fire-fighting measures**
**Extinguishing media**
**Suitable extinguishing agents**

 CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**For safety reasons unsuitable extinguishing agents** Not applicable

**Special hazards arising from the substance or mixture** No further relevant information available.

**Advice for firefighters**
**Protective equipment:**

Wear self-contained respiratory protective device.

(Contd. on page 3)

**Trade name: DX-Cartridge**

EN 12941 / EN 12942

(Contd. of page 2)

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Remove persons from danger area.
  - Ensure adequate ventilation
  - Keep away from ignition sources
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
  - Pick up scattered propellant cartridges only by hand.
  - Exposed ingredients must be swept up carefully and stabilised in a water container which has been labelled according the regulations. Wipe down the contaminated area with water.
- **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**
  - No special precautions are necessary if used correctly.
  - Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**
  - Prevent impact and friction.
  - Keep ignition sources away - Do not smoke.
  - Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
  - Store only in the original receptacle.
  - Keep in a cool, dry and dark place; 41 °F / 5 °C to 77 °F / 25 °C.
- **Information about storage in one common storage facility:**
  - Store away from flammable substances.
  - Store away from foodstuffs.
- **Further information about storage conditions:**
  - Store under lock and key and with access restricted to technical experts or their assistants only.
  - Protect from humidity and water.
- **Storage class 1**
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Control parameters**

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

### 55-63-0 glycerol trinitrate

EL	Long-term value: 0.05 ppm Skin
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EV	Long-term value: 0.5 mg/m <sup>3</sup> , 0.05 ppm Skin
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### 15245-44-0 lead 2,4,6-trinitroresorcinoxide

EV	Long-term value: 0.05 mg/m <sup>3</sup> as Pb, Skin (organic compounds)
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### 122-39-4 diphenylamine

EL	Long-term value: 10 mg/m <sup>3</sup>
EV	Long-term value: 10 mg/m <sup>3</sup>

(Contd. on page 4)

**Trade name: DX-Cartridge**

(Contd. of page 3)

· CAS No. Designation of material % Type Value Unit

 · **Additional Occupational Exposure Limit Values for possible hazards during processing:**
**630-08-0 carbon monoxide**

 EL Short-term value: 100 ppm  
 Long-term value: 25 ppm  
 R

 EV Short-term value: 100 ppm  
 Long-term value: 25 ppm

**124-38-9 carbon dioxide**

 EL Short-term value: 15000 ppm  
 Long-term value: 5000 ppm

 EV Short-term value: 54.000 mg/m<sup>3</sup>, 30.000 ppm  
 Long-term value: 9.000 mg/m<sup>3</sup>, 5.000 ppm

 · **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.

Wash hands before breaks and at the end of work.

Do not eat, drink, smoke or sniff while working.

 · **Breathing equipment:** Not required.

 · **Protection of hands:** Not required.

 · **Material of gloves:** Not applicable

 · **Penetration time of glove material:** Not required.

 · **Eye protection:**


Safety glasses

EN 166 / EN 170

 · **Body protection:**


When using setting tools, sufficient ear protection must be worn.

**9 Physical and chemical properties**

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

 · **General Information**

 · **Appearance:**

Form: Solid.

Color: According to product specification

 · **Odor:** Not determined

 · **Odour threshold:** Not applicable

 · **pH-value:** Not applicable.

 · **Change in condition**

Melting point/Melting range: Not determined.

Boiling point/Boiling range: undetermined

 · **Flash point:** Not applicable

 · **Flammability (solid, gaseous)** Not determined.

 · **Ignition temperature:** Not determined

 · **Decomposition temperature:** Not determined.

 · **Auto igniting:** Product is not selfigniting.

 · **Danger of explosion:** Not determined.

(Contd. on page 5)

**Trade name: DX-Cartridge**

(Contd. of page 4)

· <b>Explosion limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Vapor pressure:</b>	Not applicable.
· <b>Density:</b>	Not determined
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with Water:</b>	Not applicable
· <b>Partition coefficient (n-octanol/water):</b>	Not applicable
· <b>Viscosity:</b>	
<b>dynamic:</b>	Not applicable.
<b>kinematic:</b>	Not applicable.
· <b>Other information</b>	No further relevant information available.

### 10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
 Temperatures > 40 °C  
 No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**  
 acids  
 alkalis (caustic solutions).
- **Hazardous decomposition products:**  
 Carbon monoxide and carbon dioxide  
 Nitrogen oxides (NOx)

### 11 Toxicological information

- **Information on toxicological effects**  
 No harmful effects are to be expected if used properly.  
 The contained ingredients can be harmful, but they are hermetically enclosed in the article and can not be released.  
 The dismantling of the article is prohibited.
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**

· <b>IARC (International Agency for Research on Cancer)</b>
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None of the ingredients is listed.
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· <b>NTP (National Toxicology Program)</b>
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None of the ingredients is listed.
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· <b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>
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None of the ingredients is listed.
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CA EN

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**Trade name: DX-Cartridge**

(Contd. of page 5)

**12 Ecological information**

- **Toxicity**  
No harmful effects are to be expected if used properly.  
The contained ingredients can be harmful, but they are hermetically enclosed in the article and can not be released.  
The dismantling of the article is prohibited.
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Generally not hazardous for water.  
Do not allow product to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**13 Disposal considerations**


- **Waste treatment methods**
- **Recommendation**  
For disposal, local regulations issued by the authorities must be observed.  
Completely discharged cartridges strips may be disposed of as household or factory waste. No hazardous waste.

 · **European waste catalogue:**

16 04 01*	waste ammunition
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- **Uncleaned packagings:**
- **Recommendation:** Non contaminated packagings can be used for recycling.

**14 Transport information**

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|---|--|
| · <b>UN-Number</b>  |  |
| · <b>DOT, TDG, IMDG, IATA</b>   | UN0323                                     |
| · <b>UN proper shipping name</b>  |  |
| · <b>DOT, IMDG, IATA</b>  | Cartridge, power device                    |
| · <b>TDG</b>  | UN0323 cartridge, power device             |
| · <b>Transport hazard class(es)</b>   |  |
| · <b>TDG, IATA</b>  |  |
|  |  |
| · <b>Class</b>  | 1 Explosive substances und articles        |
| · <b>Label</b>  | 1.4  |
| · <b>IMDG</b>   |  |
| · <b>Class</b>  | 1 Explosive substances und articles        |
| · <b>Packing group</b>  |  |
| · <b>TDG, IMDG</b>  | Void                                       |
| · <b>Environmental hazards:</b>   |  |
| · <b>Marine pollutant:</b>  | No   |
| · <b>Special precautions for user</b>   | Warning: Explosive substances und articles |
| · <b>EMS Number:</b>  | F-B,S-X                                    |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>    | Not applicable.                            |

(Contd. on page 7)

Trade name: DX-Cartridge

(Contd. of page 6)

· UN "Model Regulation": UN0323, cartridge, power device, 1.4S

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Information about limitation of use:** Employment restrictions concerning young persons must be observed.
- **Chemical safety assessment:** not required.

### 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.

· **Relevant phrases**

- H200 Unstable explosives.
- H225 Highly flammable liquid and vapor.
- H300 Fatal if swallowed.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H310 Fatal in contact with skin.
- H311 Toxic in contact with skin.
- H330 Fatal if inhaled.
- H331 Toxic if inhaled.
- H332 Harmful if inhaled.
- H360 May damage fertility or the unborn child.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H411 Toxic to aquatic life with long lasting effects.

· **Department issuing MSDS:**

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Hiltistrasse 6  
D-86916 Kaufering  
Tel.: +49 8191 906310  
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· **Contact:** Mechthild Krauter

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
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)  
WHMIS: Workplace Hazardous Materials Information System (Canada)  
Expl. 1.4: Explosives, Division 1.4  
Unst. Expl.: Explosives, Unstable explosives  
Flam. Liq. 2: Flammable liquids, Hazard Category 2  
Acute Tox. 2: Acute toxicity, Hazard Category 2  
Acute Tox. 3: Acute toxicity, Hazard Category 3  
Acute Tox. 4: Acute toxicity, Hazard Category 4  
Acute Tox. 1: Acute toxicity, Hazard Category 1  
Repr. 1A: Reproductive toxicity, Hazard Category 1A  
STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2  
Aquatic Acute 1: Hazardous to the aquatic environment - Acute Hazard, Category 1  
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1  
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2