

1 Identification of the substance/mixture and of the company/undertaking

- **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 preparation** Cartridges for technical purpose
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Hilti Deutschland AG
Hiltistr. 2
D-86916 Kaufering
Tel +49 8191 90-0
Fax +49 8191 90-1122
Customer Service:
Tel: 0800 - 888 55 22 (toll free)
Fax: 0800 - 888 55 23 (toll free)
E-Mail: de.kundenservice@hilti.com
- **Informing department:**
df-hse@hilti.com
see section 16
- **Emergency telephone number:**
Schweizerisches Toxikologisches Informationszentrum - 24 h Service
Tel.: 0041 / 44 251 51 51 (international)
- Hilti Deutschland AG
Tel +49 8191 90-0
Fax +49 8191 90-1122

2 Hazards 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.
- **Classification according to Regulation (EC) No 1272/2008**



GHS01 exploding bomb

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)

- **Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **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.
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 2)



Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Printing date 27.08.2013

Version number 2

Revision: 27.08.2013

Trade name: DX-Cartridge

(Contd. of page 1)

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description:

Mixture consisting of the following components.

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.

CAS: 55-63-0 EINECS: 200-240-8	glycerol trinitrate ⚠ Unst. Expl., H200; ⚠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ⚠ STOT RE 2, H373; ⚠ Aquatic Chronic 2, H411; Flam. Liq. 2, H225	3-<25%
CAS: 15245-44-0 EINECS: 239-290-0	lead 2,4,6-trinitroresorcinoxide ⚠ Unst. Expl., H200; ⚠ Repr. 1A, H360Df; STOT RE 2, H373; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	0,1-<5%
CAS: 10022-31-8 EINECS: 233-020-5	barium nitrate ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	0-<5%
CAS: 122-39-4 EINECS: 204-539-4	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%

· 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.

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 the open air and position comfortably

· After skin contact Instantly wash with water and soap and rinse thoroughly. If skin irritation persist, call a physician.

· After eye contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

· After swallowing

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

· Information for doctor

If decomposition products are inhaled the following symptoms can occur:

Unconsciousness, Impaired consciousness, Cyanosis (only CO₂), Vomiting, Cardiac arrhythmias, Headache, Spasms,

Circulatory collapse, Dizziness, Impairment of vision, Nausea

· 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.

Possibly oxygen respiration treatment

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

(Contd. on page 3)

DE EN



Trade name: DX-Cartridge

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

(Contd. of page 2)

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents** Water spray, carbon dioxide (CO₂), carbon dioxide blanket, foam, or dry powder.
- **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:**
In the event of fire, wear self contained breathing apparatus
EN 12941 / EN 12942

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Remove persons from danger area.
Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.
Keep away from ignition sources
- **Environmental precautions:** Do not allow to enter drainage system, surface or ground water.
- **Methods and material for containment and cleaning up:**
Pick up loose cartridges only by hand.
Exposed ingredients must be swept up carefully and phlegmatized in a water container, labelled according the regulations, wipe down with water the contaminated area.
- **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 information on disposal.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
No special precautions necessary if used correctly.
Provide sufficient air exchange and/or exhaust in work rooms. When using, do not eat, drink or smoke. Ingestion, exposure to skin and eyes and inhalation of any general vapours should be avoided.
- **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 containers:**
Store only in the original container.
Keep in a cool, dry and dark place; 5 °C to 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 in a locked cabinet or with access restricted to technical experts or their assistants.
Protect from humidity and keep away from water.
- **Storage class 1**
- **Classification according to "Betriebssicherheitsverordnung (BetrSichV)":** -
- **Specific end use(s)** No further relevant information available.

DE EN

(Contd. on page 4)



Trade name: DX-Cartridge

(Contd. of page 3)

8 Exposure controls/personal protection

· Control parameters

· Components with limit values that require monitoring at the workplace:

55-63-0 glycerol trinitrate

AGW (Germany)	Long-term value: 0,094 mg/m ³ , 0,01 ppm 1(II);H, Y, DFG
---------------	--

122-39-4 diphenylamine

MAK (Germany)	Long-term value: 5E mg/m ³ vgl. Abschn. Xc
---------------	--

· Ingredients with biological limit values:

55-63-0 glycerol trinitrate

BGW (Germany)	0,5 µg/l Untersuchungsmaterial: Plasma/Serum Probennahmezeitpunkt: Expositionsende bzw. Schichtende Parameter: 1,2- Glycerindinitrat
	0,5 µg/l Untersuchungsmaterial: Plasma/Serum Probennahmezeitpunkt: Expositionsende bzw. Schichtende Parameter: 1,3- Glycerindinitrat

· CAS No. Designation of material % Type Value Unit

· Additional Occupational Exposure Limit Values for possible hazards during processing:

630-08-0 carbon monoxide

AGW (Germany)	Long-term value: 35 mg/m ³ , 30 ppm 2(II);Z, DFG
---------------	--

124-38-9 carbon dioxide

AGW (Germany)	Long-term value: 9100 mg/m ³ , 5000 ppm 2(II);DFG, EU
IOELV (EU)	Long-term value: 9000 mg/m ³ , 5000 ppm

· **Additional information:** The lists that were valid during the compilation were used as basis.

· Exposure controls

· Personal protective equipment

· General protective and hygienic measures

The usual precautionary measures should be adhered to general rules for handling chemicals.

Wash hands during breaks and at the end of the work.

Do not eat, drink or smoke 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.



Trade name: DX-Cartridge

(Contd. of page 4)

9 Physical and chemical properties

· Information on basic physical and chemical properties	
· General Information	
· Appearance:	
Form:	Solid.
Colour:	According to product specification
· Odour:	Not determined
· Odour threshold:	Not applicable
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
· Flash point:	Not applicable
· Inflammability (solid, gaseous)	Not determined.
· Ignition temperature:	Not determined
· Decomposition temperature:	Not determined.
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Not determined.
· Critical values for explosion:	
Lower:	Not determined.
Upper:	Not determined.
· Vapour pressure:	Not applicable.
· Density	Not determined
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Not applicable
· Partition coefficient (n-octanol/water):	
Not applicable	
· Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
Temperatures > 150 °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 (NO_x)

DE EN

(Contd. on page 6)



Trade name: DX-Cartridge

(Contd. of page 5)

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 irritant effect.

· **Sensitization:** No sensitizing effect known.

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.

· Behaviour 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 bodies 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
------------	------------------

· Uncleaned packagings:

· **Recommendation:** Non contaminated packagings can be used for recycling.

14 Transport information

· UN-Number

· ADR, IMDG, IATA

UN0323

· UN proper shipping name

· ADR

· IMDG, IATA

UN0323 cartridge, power device

Cartridge, power device

· Transport hazard class(es)

· ADR, IATA



· Class

1 Explosive substances and articles.

(Contd. on page 7)



Safety data sheet

according to 1907/2006/EC, Article 31 / ISO 11014

Printing date 27.08.2013

Version number 2

Revision: 27.08.2013

Trade name: DX-Cartridge

(Contd. of page 6)

· Label	1.4
· IMDG	
· Class	1 Explosive substances and articles.
· Packing group	
· ADR, IMDG	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Explosive substances and articles.
· EMS Number:	F-B,S-X
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· 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**
Transportation, application and handling of cartridges power device are not subject to the German Explosives' Law (SprengG). Consequently a permission in accordance with the German Explosives Law is not required.
For the distribution of cartridges power device and the corresponding power devices the regulations as per par. 7-12 'and 29 point 1 of the German gun control laws (WaffG) are not applicable. This means that no permit, no special knowledge and no gun licence according to Gun Control Laws are required. Furthermore no ammunition register has to be kept.
Distribution is allowed only to persons older than 18 years.
 - **Information about limitation of use:** Employment restrictions concerning young persons must be observed.
 - **Classification according to "Betriebssicherheitsverordnung (BetrSichV)":** -
 - **Water hazard class:** Water hazard class: article, not applicable
 - **Other regulations, limitations and prohibitive regulations**
 - **Substances of very high concern (SVHC) according to REACH, Article 57**
- | | |
|------------|----------------------------------|
| 15245-44-0 | lead 2,4,6-trinitroresorcinoxide |
|------------|----------------------------------|
- **Chemical safety assessment:** not required.

16 Other information

These data are based on our present knowledge. However, they 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 vapour.
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.
H360Df May damage the unborn child. Suspected of damaging fertility.
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 data specification sheet:**
Hilti Entwicklungsgesellschaft mbH
Hiltistrasse 6
D-86916 Kaufering
Tel.: +49 8191 906310
Fax: +49 8191 90176310

(Contd. on page 8)

DE EN



Safety data sheet
according to 1907/2006/EC, Article 31 / ISO 11014

Printing date 27.08.2013

Version number 2

Revision: 27.08.2013

Trade name: DX-Cartridge

(Contd. of page 7)

df-hse@hilti.com

· **Contact:** Mechthild Krauter· **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

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

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)

· *** Data compared to the previous version altered.**

DE EN