

# DX-Cartridge

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations  
 Date of issue: 01/28/2016      Revision date: 01/28/2016      Supersedes: 05/18/2015

Version: 2.3

### SECTION 1: Identification

#### 1.1. Identification

Product form	Article
Name	DX-Cartridge
Product code	BU Direct Fastening

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

<b>Supplier</b>	<b>Department issuing data specification sheet</b>
Hilti, Inc.	Hilti Entwicklungsgesellschaft mbH
Legacy Tower, Suite 1000	Hiltistrasse 6
75024 Plano - USA	86916 Kaufering - Deutschland
T +1 9724035800	T +49 8191 906310 - F +49 8191 90176310
1-800-879-8000 toll free - F +1 918 254 0522	<a href="mailto:df-hse@hilti.com">df-hse@hilti.com</a>

#### 1.4. Emergency telephone number

Emergency number	Chem-Trec
	Tel.: 1 800 424 9300 (USA, PR, Virgin Islands, Canada)
	Tel.: 703 527 3887 (Other countries)
	+1 918 8723000
	1-800-879-8000 toll free

### SECTION 2: Hazards identification

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.

#### 2.1. Classification of the substance or mixture

GHS-US classification  
 Expl. 1.4 H204 - Fire or projection hazard  
 Full text of H-statements: see section 16

#### 2.2. Label elements

GHS-US labelling  
 Hazard pictograms (GHS-US)



GHS01

Signal word (GHS-US)	Warning
Hazard statements (GHS-US)	H204 - Fire or projection hazard
Precautionary statements (GHS-US)	P210 - Keep away from heat. - No smoking P250 - Do not subject to shock P280 - Wear eye protection

#### 2.3. Other hazards

No additional information available

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### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	GHS-US classification
glycerol trinitrate	(CAS No) 55-63-0	3 - 10	Unst. Expl, H200 Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation:dust,mist), H330 STOT RE 2, H373 Aquatic Chronic 2, H411
lead styphnate	(CAS No) 15245-44-0	0.1 - 5	Unst. Expl, H200 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Repr. 1A, H360 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Barium nitrate	(CAS No) 10022-31-8	0 - 5	Acute Tox. 4 (Oral), H302
diphenylamine	(CAS No) 122-39-4	0 - 1	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:dust,mist), H331 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Tetrazen	(CAS No) 109-27-3	0 - 0.2	Unst. Expl, H200 Eye Irrit. 2A, H319

Full text of H-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation	Allow breathing of fresh air. Allow the victim to rest.
First-aid measures after skin contact	Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact	Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion	Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries Not expected to present a significant hazard under anticipated conditions of normal use.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

No additional information available



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### 5.3. Advice for firefighters

Firefighting instructions	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.
6.1.1. For non-emergency personnel	
Emergency procedures	Evacuate unnecessary personnel.
6.1.2. For emergency responders	
Protective equipment	Equip cleanup crew with proper protection.
Emergency procedures	Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Pick up loose cartridges only by hand. Exposed ingredients must be swept up carefully and phlegmatized in a water container, labelled according to the regulations, wipe down with water the contaminated area. Store away from other materials.
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### 6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed	Hazardous waste due to potential risk of explosion.
Precautions for safe handling	Do not subject to grinding, shock, friction. Take precautionary measures against static discharge. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Hygiene measures	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat sources. Store in a dry place.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Storage temperature	5 - 25 °C
Prohibitions on mixed storage	KEEP SUBSTANCE AWAY FROM: highly flammable materials. ignition sources.
Storage area	Store away from heat.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

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glycerol trinitrate (55-63-0)		
ACGIH	ACGIH TWA (ppm)	0.05 ppm
ACGIH	ACGIH STEL (ppm)	0.05 ppm
ACGIH	Remark (ACGIH)	Vasodilation
OSHA	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
OSHA	OSHA PEL (Ceiling) (ppm)	0.2 ppm
Barium nitrate (10022-31-8)		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
diphenylamine (122-39-4)		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
ACGIH	Remark (ACGIH)	Liver & kidney dam; hematologic eff

### 8.2. Exposure controls

Personal protective equipment

Avoid all unnecessary exposure. Safety glasses. Protective clothing.



Eye protection

Safety glasses.

Skin and body protection

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

Other information

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	Solid
Colour	According to product specification
Odour	There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour(s): No data available on odour Pleasant odour Floral odour Odourless
Odour threshold	No data available
pH	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	No data available
Flash point	No data available
Relative evaporation rate (butylacetate=1)	No data available
Flammability (solid, gas)	No data available
Explosive limits	No data available
Explosive properties	Fire or projection hazard.
Oxidising properties	No data available
Vapour pressure	No data available
Relative density	No data available
Relative vapour density at 20 °C	No data available
Solubility	No data available
Log Pow	No data available
Auto-ignition temperature	No data available



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Decomposition temperature	No data available
Viscosity	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Heat. Sparks. Open flame. Overheating.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. Nitrogen oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity Not classified

<b>glycerol trinitrate (55-63-0)</b>	
ATE US (oral)	5.000 mg/kg bodyweight
ATE US (dermal)	5.000 mg/kg bodyweight
ATE US (dust,mist)	0.050 mg/l/4h
<b>Barium nitrate (10022-31-8)</b>	
LD50 oral rat	355 mg/kg (Rat)
ATE US (oral)	355.000 mg/kg bodyweight
<b>lead styphnate (15245-44-0)</b>	
ATE US (oral)	500.000 mg/kg bodyweight
ATE US (dust,mist)	1.500 mg/l/4h
<b>diphenylamine (122-39-4)</b>	
ATE US (oral)	100.000 mg/kg bodyweight
ATE US (dermal)	300.000 mg/kg bodyweight
ATE US (dust,mist)	0.500 mg/l/4h

Skin corrosion/irritation	Not classified
Serious eye damage/irritation	Not classified
Respiratory or skin sensitisation	Not classified

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Germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
Carcinogenicity	Not classified
Reproductive toxicity	Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Not classified
Potential adverse human health effects and symptoms	Based on available data, the classification criteria are not met. 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.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general	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.
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<b>glycerol trinitrate (55-63-0)</b>	
LC50 fish 1	2.1 mg/l (96 h; Pimephales promelas)
EC50 Daphnia 1	25 mg/l (168 h; Daphnia magna)
LC50 fish 2	1.3 mg/l (96 h; Lepomis macrochirus)
ErC50 (algae)	0.4 mg/l
NOEC chronic fish	0.03 mg/l
Threshold limit algae 1	> 6.5 mg/l (Scenedesmus quadricauda)
<b>Barium nitrate (10022-31-8)</b>	
LC50 fish 1	1900 mg/l
LC50 other aquatic organisms 1	> 1000 mg/l (96 h)
Threshold limit other aquatic organisms 1	> 1000 mg/l (96 h)
<b>lead styphnate (15245-44-0)</b>	
EC50 Daphnia 1	7 mg/l
TLM fish 1	7.48 mg/l (96 h; Pimephales promelas; Lead ion)
Threshold limit algae 1	0.14 mg/l (Selenastrum capricornutum; Lead ion)
<b>diphenylamine (122-39-4)</b>	
LC50 fish 1	> 20 mg/l (48 h; Leuciscus idus)
EC50 Daphnia 1	2.3 mg/l (24 h; Daphnia magna)
LC50 fish 2	2.2 - 5.1 mg/l (48 h; Oryzias latipes)
ErC50 (algae)	0.36 mg/l
Threshold limit other aquatic organisms 1	1000 mg/l (24 h; Pseudomonas fluorescens)
Threshold limit algae 1	0.048 mg/l (72 h; Scenedesmus subspicatus; Inhibitory)
<b>Tetrazen (109-27-3)</b>	
EC50 Daphnia 1	0.14 mg/l



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### 12.2. Persistence and degradability

DX-Cartridge	
Persistence and degradability	Not established.
glycerol trinitrate (55-63-0)	
Persistence and degradability	Biodegradable in water.
Biochemical oxygen demand (BOD)	53.6 g O <sub>2</sub> /g substance
Barium nitrate (10022-31-8)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
diphenylamine (122-39-4)	
Persistence and degradability	Not readily biodegradable in water.
ThOD	2.39 g O <sub>2</sub> /g substance

### 12.3. Bioaccumulative potential

DX-Cartridge	
Bioaccumulative potential	Not established.
glycerol trinitrate (55-63-0)	
Log Pow	1.62
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
Barium nitrate (10022-31-8)	
Bioaccumulative potential	Not bioaccumulative.
diphenylamine (122-39-4)	
BCF fish 1	51 - 253 (Cyprinus carpio; Test duration: 8 weeks)
Log Pow	3.22 - 3.50
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

### 12.4. Mobility in soil

diphenylamine (122-39-4)	
Surface tension	0.03 N/m (60 °C)
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

### 12.5. Other adverse effects

Effect on the global warming	No known ecological damage caused by this product.
Other information	Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations	Dispose in a safe manner in accordance with local/national regulations. Refer to manufacturer/supplier for information on recovery/recycling.
Additional information	Hazardous waste due to potential risk of explosion.
Ecology - waste materials	Avoid release to the environment.





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### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	RID
<b>14.1. UN number</b>			
0323	0323	0323	0323
<b>14.2. UN proper shipping name</b>			
CARTRIDGES, POWER DEVICE	CARTRIDGES, POWER DEVICE	Cartridges, power device	CARTRIDGES, POWER DEVICE
<b>Transport document description</b>			
UN 0323 CARTRIDGES, POWER DEVICE (1.4S), (E)	UN 0323 CARTRIDGES, POWER DEVICE, 1.4S		
<b>14.3. Transport hazard class(es)</b>			
1.4S	1.4S	1.4S	1.4S
			
<b>14.4. Packing group</b>			
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.5. Environmental hazards</b>			
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available			

### 14.6. Special precautions for user

**- Overland transport**

Special provisions (ADR)	347
Limited quantities (ADR)	0
Packing instructions (ADR)	P134, LP102
Mixed packing provisions (ADR)	MP23
Tunnel restriction code (ADR)	E

**- Transport by sea**

Special provisions (IMDG)	347
Limited quantities (IMDG)	0
Packing instructions (IMDG)	P134, LP102
EmS-No. (Fire)	F-B
EmS-No. (Spillage)	S-X
Stowage category (IMDG)	01
Stowage and segregation (IMDG)	Protected from sources of heat
MFAG-No	114

**- Air transport**

PCA packing instructions (IATA)	134
PCA max net quantity (IATA)	25kg
Special provisions (IATA)	A165



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**- Rail transport**

Special provisions (RID)	347
Limited quantities (RID)	0
Packing instructions (RID)	P134, LP102
Carriage prohibited (RID)	No

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

### SECTION 15: Regulatory information

**15.1. US Federal regulations**

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

glycerol trinitrate	CAS No 55-63-0	3 - 10%
diphenylamine	CAS No 122-39-4	0 - 1%

<b>glycerol trinitrate (55-63-0)</b>	
Subject to reporting requirements of United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb

<b>diphenylamine (122-39-4)</b>	
Subject to reporting requirements of United States SARA Section 313	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

**15.2. International regulations**

**CANADA**

No additional information available

**EU-Regulations**

No additional information available

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Expl. 1.4 H204

Full text of hazard classes and H-statements : see section 16

**National regulations**

No additional information available

**15.3. US State regulations**

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

### SECTION 16: Other information

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Full text of H-statements:

Acute Tox. 1 (Dermal)	Acute toxicity (dermal), Category 1
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
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
Expl. 1.4	Explosives, Division 1.4
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Repr. 1A	Reproductive toxicity, Category 1A
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
Unst. Expl	Explosives, Unstable explosives
H200	Unstable explosives
H204	Fire or projection hazard
H300	Fatal if swallowed
H301	Toxic if swallowed
H302	Harmful if swallowed
H310	Fatal in contact with skin
H311	Toxic in contact with skin
H319	Causes serious eye irritation
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

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