

DX-Cartridge Clean-Tec

Safety Data Sheet

Product Safety Information Sheet

According to ICOP 2014

Issue date: 04/11/2021

Revision date: 4/11/2021

Supersedes: 12/02/2016

Version: 3.2

SECTION 1: Identification of the hazardous chemical and of the supplier

1.1. Product identifier

Trade name	DX-Cartridge Clean-Tec
Product form	Article
Product code	BU Direct Fastening

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use	CARTRIDGES FOR TOOLS, BLANK
Restrictions on use	For professional use only

1.4. Supplier's details

Supplier

Hilti AG
Feldkircherstraße 100
P.O. Box 333
9494 Schaan - Liechtenstein
T +423 234 2111 - F +423 234 2965
www.hilti.com

Department issuing data specification sheet

Hilti Entwicklungsgesellschaft mbH
Hiltistraße 6
86916 Kaufering - Deutschland
T +49 8191 906876
anchor.hse@hilti.com

1.5. Emergency phone number

Emergency number	Schweizerisches Toxikologisches Informationszentrum – 24h Service +41 44 251 51 51 (international) +423 234 2111
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SECTION 2: Hazards identification

2.1. Classification of the hazardous chemical

Classification according to Industry Code of Practice on chemicals classification and hazard communication (2014)

Expl. 1.4	H204
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2.2. Label elements

Labelling according to Industry Code of Practice on chemicals classification and hazard communication (2014)

Hazard pictograms (GHS MY)



GHS01

Signal word (GHS MY)

Warning

Hazard statements (GHS MY)

H204 - Fire or projection hazard.

Precautionary statements (GHS MY)

P210 - Keep away from heat, hot surfaces, open flames, sparks. No smoking.

P250 - Do not subject to shock, friction, grinding.

P280 - Wear eye protection.

P372 - Explosion risk in case of fire.

P370+P380+P375 - In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

P401 - Store in accordance with local regulations on explosives.

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2.3. Other hazards not contributing to the classification

Other hazards which do not result in classification

This article contains hazardous substances or preparations not intended to be released under normal or reasonably foreseeable conditions of use, The dismantling of the article is prohibited!, Keep away from ignition sources (including static discharges)

SECTION 3: Composition and information of the ingredients of the hazardous chemical

3.1. Substances

Not applicable

3.2. Mixtures

Comments

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; titanium: 230; black: 260
 Caliber 6.8/18 (cal .27 long) green: 190; yellow: 220; blue: 300; red: 330; black: 410
 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: glycerol trinitrate containing nitrocellulose powder
 Mass per cartridge: essentially dependent on the required power (100-400 mg)
 Priming composition: SINTOX (initiating explosive) Mass per cartridge: 20,9 mg in the mean.
 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.

Name	Product identifier	%
cellulose nitrate	(CAS-No.) 9004-70-0	5 - 17
glycerol trinitrate	(CAS-No.) 55-63-0	2 - 7
diphenylamine	(CAS-No.) 122-39-4	0.1 - 1
copper	(CAS-No.) 7440-50-8	0 - 1
zinc	(CAS-No.) 7440-66-6	0 - 1
tetrazene	(CAS-No.) 109-27-3	0 - 1

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	In all cases of doubt, or when symptoms persist, seek medical attention.
First-aid measures after inhalation	Allow affected person to breathe 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 persists.
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/effects Not expected to present a significant hazard under anticipated conditions of normal use.

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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	Dry powder. Water spray.
Unsuitable extinguishing media	Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire	Carbon monoxide. Carbon dioxide (CO ₂). Nitrous gasses.
Firefighting instructions	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the 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.
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6.1.1. For non-emergency personnel

Emergency procedures	Evacuate unnecessary personnel.
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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 the regulations, wipe down with water the contaminated area. Store away from other materials.
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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.
Storage area	Store away from heat.
Incompatible products	Strong bases. Strong acids.
Information on mixed storage	Keep away from : Ignition sources. Do not store with: Store according to local legislation.
Storage temperature	5 – 25 °C

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DX-Cartridge Clean-Tec	
Malaysia - Occupational Exposure Limits	
PEL (OEL TWA) [1]	0.2 mg/m ³ Wasap # Fume 1 mg/m ³ Habuk dan kabus, sebagai Cu # Dusts & mists, as Cu
PEL (OEL TWA) [2]	0.05 ppm
Remark (MY)	(kulit # skin)

Exposure limit values for the other components

No additional information available

8.2. Monitoring

No additional information available

8.3. Appropriate engineering controls

No additional information available

8.4. Personal protective equipment

Eye protection:

Safety glasses

Skin and body protection:

When using cartridge operated tools, sufficient ear protection must be worn.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

Physical state	Solid
Appearance	No data available
Colour	According to product specification
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point, Freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Explosive limits	No data available
Vapour pressure	No data available
Relative vapour density at 20 °C	No data available
Relative density	No data available
Solubility	No data available
Partition coefficient n-octanol/water (Log Pow)	No data available

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Partition coefficient n-octanol/water (Log Kow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	Fire or projection hazard.
Additional information	Not applicable Article

SECTION 10: Stability and reactivity

Reactivity	No data available
Chemical stability	Stable under normal conditions
Possibility of hazardous reactions	Not established
Conditions to avoid	Direct sunlight, Extremely high or low temperatures, Heat, Sparks, Open flame, Overheating
Incompatible materials	Strong acids, Strong bases
Hazardous decomposition products	Carbon monoxide, Carbon dioxide, Nitrogen oxides, Metal oxides, Thermal decomposition can lead to the release of irritating gases and vapours

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified

glycerol trinitrate (55-63-0)	
LD50 oral rat	685 mg/kg bodyweight (Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 oral	685 mg/kg
LD50 dermal rat	> 9560 mg/kg bodyweight (Equivalent or similar to OECD 402, Rat, Male / female, Experimental value, Dermal)

diphenylamine (122-39-4)	
LD50 oral rat	> 800 mg/kg bodyweight (Rat, Male, Experimental value, Oral)

zinc (7440-66-6)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))

Skin corrosion/irritation	Not classified
Serious eye damage/irritation	Not classified
Respiratory or skin sensitisation	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
STOT-single exposure	Not classified
STOT-repeated exposure	Not classified

glycerol trinitrate (55-63-0)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

diphenylamine (122-39-4)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard	Not classified
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Potential adverse human health effects and symptoms

No additional information available. 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.

Hazardous to the aquatic environment, short-term (acute)

Not classified

Hazardous to the aquatic environment, long-term (chronic)

Not classified

Other information

Avoid release to the environment.

glycerol trinitrate (55-63-0)	
LC50 - Fish [1]	1.9 mg/l (ASTM E729-80, 96 h, Oncorhynchus mykiss, Flow-through system, Fresh water, Experimental value, Lethal)
NOEC chronic fish	0.03 mg/l
diphenylamine (122-39-4)	
EC50 - Crustacea [1]	2 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Fresh water, Experimental value, Locomotor effect)
ErC50 algae	2.17 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Experimental value, GLP)
NOEC chronic algae	0.0273 mg/l
BCF - Fish [1]	51 – 253 (Cyprinus carpio, Literature study, Test duration: 8 weeks)
Partition coefficient n-octanol/water (Log Pow)	3.71 – 3.84 (Weight of evidence approach, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20.2 °C)
Partition coefficient n-octanol/water (Log Koc)	2.818 – 2.917 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
copper (7440-50-8)	
LC50 - Fish [1]	200 µg/l (96 h, Salmo gairdneri, Flow-through system, Fresh water, Weight of evidence, Lethal)
EC50 - Crustacea [1]	109 – 798 µg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Weight of evidence, Locomotor effect)
EC50 72h - Algae [1]	230 µg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Weight of evidence, Growth rate)
zinc (7440-66-6)	
LC50 - Fish [1]	0.169 mg/l (Other, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Read-across, Zinc ion)
EC50 - Crustacea [1]	416 µg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Ceriodaphnia dubia, Static system, Fresh water, Experimental value)
ErC50 algae	0.15 mg/l
BCF - Fish [1]	0.002 (40 day(s), Danio rerio, Semi-static system, Fresh water, Read-across)
tetrazene (109-27-3)	
EC50 - Crustacea [1]	0.14 mg/l

12.2. Persistence and degradability

DX-Cartridge Clean-Tec	
Persistence and degradability	Not established.
glycerol trinitrate (55-63-0)	
Not rapidly degradable	
Persistence and degradability	Readily biodegradable in water.

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glycerol trinitrate (55-63-0)	
Biochemical oxygen demand (BOD)	53.6 g O ₂ /g substance
diphenylamine (122-39-4)	
Not rapidly degradable	
Persistence and degradability	Not readily biodegradable in water.
ThOD	2.39 g O ₂ /g substance
copper (7440-50-8)	
Not rapidly degradable	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
zinc (7440-66-6)	
Not rapidly degradable	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
tetrazene (109-27-3)	
Not rapidly degradable	

12.3. Bioaccumulative potential

DX-Cartridge Clean-Tec	
Bioaccumulative potential	Not established.
glycerol trinitrate (55-63-0)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
diphenylamine (122-39-4)	
BCF - Fish [1]	51 – 253 (Cyprinus carpio, Literature study, Test duration: 8 weeks)
Partition coefficient n-octanol/water (Log Pow)	3.71 – 3.84 (Weight of evidence approach, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20.2 °C)
Partition coefficient n-octanol/water (Log Koc)	2.818 – 2.917 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
copper (7440-50-8)	
Bioaccumulative potential	Bioaccumulation: not applicable.
zinc (7440-66-6)	
BCF - Fish [1]	0.002 (40 day(s), Danio rerio, Semi-static system, Fresh water, Read-across)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

DX-Cartridge Clean-Tec	
Mobility in soil	No additional information available
glycerol trinitrate (55-63-0)	
Ecology - soil	Low potential for adsorption in soil.
diphenylamine (122-39-4)	
Surface tension	71.8 mN/m (20 °C, 90 %, EU Method A.5: Surface tension)
Partition coefficient n-octanol/water (Log Pow)	3.71 – 3.84 (Weight of evidence approach, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20.2 °C)
Partition coefficient n-octanol/water (Log Koc)	2.818 – 2.917 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for adsorption in soil. May be harmful to plant growth, blooming and fruit formation.

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copper (7440-50-8)	
Ecology - soil	Adsorbs into the soil.
zinc (7440-66-6)	
Surface tension	No data available in the literature
Ecology - soil	Adsorbs into the soil.

12.5. Other adverse effects

Ozone	Not classified
Other adverse effects	No additional information available

SECTION 13: Disposal information

13.1. Disposal methods

Product/Packaging disposal recommendations	Dispose in a safe manner in accordance with local/national regulations. Refer to manufacturer/supplier for information on recovery/recycling.
Ecology - waste materials	Avoid release to the environment.
Additional information	Cartridge strips with unused cartridges: Hazardous waste due to risk of explosion. European waste catalogue: 16 04 01* - waste ammunition. If possible use up the cartridges or store them for your next project. If not possible to use up the cartridges - The strip is mixed municipal waste and the cartridge itself is "waste ammunition" and has to be disposed of by an authorized/certified company. If cartridges are used up: European waste catalogue: 20 03 01 - mixed municipal waste . The product (cartridges and strip) can be disposed of as household or factory waste.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / RID

ADR	IMDG	IATA	RID
14.1. UN number or ID number			
UN 0323	UN 0323	UN 0323	UN 0323
14.2. UN proper shipping name			
CARTRIDGES, POWER DEVICE	CARTRIDGES, POWER DEVICE	Cartridges, power device	CARTRIDGES, POWER DEVICE
Transport document description			
UN 0323 CARTRIDGES, POWER DEVICE, 1.4S, (E)	UN 0323 CARTRIDGES, POWER DEVICE, 1.4S	UN 0323 Cartridges, power device, 1.4S	UN 0323 CARTRIDGES, POWER DEVICE, 1.4S
14.3. Transport hazard class(es)			
1.4S	1.4S	1.4S	1.4S
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards			
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			

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14.6. Special precautions for user

Overland transport

Classification code (ADR)	1.4S
Special provisions (ADR)	347
Limited quantities (ADR)	0
Packing instructions (ADR)	P134, LP102
Mixed packing provisions (ADR)	MP23
Transport category (ADR)	4
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 handling (IMDG)	SW1
MFAG-No	114

Air transport

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

Rail transport

Special provisions (RID)	347
Limited quantities (RID)	0
Packing instructions (RID)	P134, LP102

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

14.8. Hazchem or Emergency Action Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

No additional information available

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

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Indication of changes:

Section	Changed item	Change	Comments
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2.2	Precautionary statements (GHS MY)	Modified	
3.2	Composition/information on ingredients	Modified	

Abbreviations and acronyms

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE - Acute Toxicity Estimate
 BCF - Bioconcentration factor
 CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
 DMEL - Derived Minimal Effect level
 DNEL - Derived-No Effect Level
 EC50 - Median effective concentration
 IARC - International Agency for Research on Cancer
 IATA - International Air Transport Association
 IMDG - International Maritime Dangerous Goods
 LC50 - Median lethal concentration
 LD50 - Median lethal dose
 LOAEL - Lowest Observed Adverse Effect Level
 NOAEC - No-Observed Adverse Effect Concentration
 NOAEL - No-Observed Adverse Effect Level
 NOEC - No-Observed Effect Concentration
 OECD - Organisation for Economic Co-operation and Development
 PBT - Persistent Bioaccumulative Toxic
 PNEC - Predicted No-Effect Concentration
 REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
 RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
 SDS - Safety Data Sheet
 vPvB - Very Persistent and Very Bioaccumulative

Full text of H-statements:

Acute Tox. 1 (Dermal)	Acute toxicity (dermal), Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. Not classified (Oral)	Acute toxicity (oral) Not classified
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Acute Not classified	Hazardous to the aquatic environment - Acute Hazard Not classified
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
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.
H310	Fatal in contact with skin
H311	Toxic in contact with skin
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.

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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.