DX-Cartridge Clean-Tec

Safety Data Sheet

according to the Hazardous Products Regulation (WHMIS 2015)
Issue date: 10/02/2023 Revision date: 10/02/2023 Supersedes: 09/04/2023 Version: 4.1

SECTION 1: Identification

1.1. Product identifier

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

1.2. Recommended use and restrictions on use

Recommended uses and restrictions	For professional use only
Recommended use	CARTRIDGES FOR TOOLS, BLANK

1.3. Supplier

Supplier
Hilti (Canada) Corp.
Suite 700
2360 Meadowpine Boulevard
Mississauga, Ontario, Ontario L5N 6S2
Canada
T +1905 8139200
1-800-363-4458 toll free - F +1 905 813 9009

Department issuing data specification sheet
Hilti AG
Feldkircherstraße 100
Schaan, 9494
Liechtenstein
T +423 234 2111
df-hse@hilti.com

1.4. Emergency telephone number

Emergency number	Emergency contact (24 hours per day) GBK/Infotrac ID 101022 (USA domestic) 1 800 535 5053 or international (001)352 323 3500

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)

Not classified

2.2. GHS Label elements, including precautionary statements

GHS CA labelling

Precautionary statements (GHS CA)	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P250 - Do not subject to friction, grinding, shock. P280 - Wear eye protection. P370+P380+P375 - In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. P372 - Explosion risk in case of fire. P401 - Store in accordance with local regulations on explosives.

2.3. Other hazards

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).

2.4. Unknown acute toxicity (GHS CA)

No data available

SECTION 3: Composition/information on ingredients

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)
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	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Iron	Iron	CAS-No.: 7439-89-6	50 – 70	Not classified
Plastics (PP / PA / PC)	-	-	15 – 40	Not classified
cellulose nitrate	-	CAS-No.: 9004-70-0	5 - 10	Not classified
glycerol trinitrate	glycerol trinitrate; nitroglycerine	CAS-No.: 55-63-0	2 – 7	Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation), H330 STOT RE 2, H373
diphenylamine	diphenylamine	CAS-No.: 122-39-4	0 – 1	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Eye Irrit. 2, H319 STOT RE 2, H373
copper	-	CAS-No.: 7440-50-8	0 – 1	Not classified
zinc	zinc powder—zinc dust (stabilised)	CAS-No.: 7440-66-6	0 – 1	Not classified
tetrazene	tetrazene	CAS-No.: 109-27-3	0 – 1	Eye Irrit. 2A, H319

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

SECTION 4: First-aid measures

4.1. Description of first aid measures

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.
First-aid measures general	In all cases of doubt, or when symptoms persist, seek medical attention.

4.2. Most important symptoms and effects (acute and delayed)

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

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment	No additional information available.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media	Dry powder. Water spray.

5.2. Unsuitable extinguishing media

Unsuitable extinguishing media	Do not use a heavy water stream.

5.3. Specific hazards arising from the hazardous product

Hazardous decomposition products in case of fire	Carbon monoxide. Carbon dioxide (CO2). Nitrous gasses.

5.4. Special protective equipment and precautions for fire-fighters

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.

6.2. Methods and materials 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 contamined area. Store away from other materials.
Other information	For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

6.3. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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.
Additional hazards when processed	Hazardous waste due to potential risk of explosion.

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.
Storage temperature	5 – 25 °C
Storage area	Store away from heat.
Information on mixed storage	Keep away from : Ignition sources. Do not store with: Store according to local legislation.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

glycerol trinitrate (55-63-0)	
Canada (Alberta) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA	0.5 mg/m³
OEL TWA [ppm]	0.05 ppm
Notations and remarks	Substance may be readily absorbed through intact skin.
Regulatory reference	Alberta Regulation 191/2021
Canada (Quebec) - Occupational Exposure Limits	
Local name	Nitroglycerin
VEMP (OEL TWA) [ppm]	0.05 ppm
Notations and remarks	Pc
Regulatory reference	S-2.1, r. 13 - Regulation respecting occupational health and safety
Canada (British Columbia) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
Notations and remarks	Skin
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)
Canada (Manitoba) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
Notations and remarks	TLV® Basis: Vasodilation. Notations: Skin
Regulatory reference	ACGIH 2023

glycerol trinitrate (55-63-0)	
Canada (New Brunswick) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
Notations and remarks	Vasodilation
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
Notations and remarks	TLV® Basis: Vasodilation. Notations: Skin
Regulatory reference	ACGIH 2023
Canada (Nova Scotia) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
Notations and remarks	TLV® Basis: Vasodilation. Notations: Skin
Regulatory reference	ACGIH 2023
Canada (Nunavut) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
OEL STEL [ppm]	0.15 ppm
Notations and remarks	Skin
Regulatory reference	Occupational Health and Safety Regulations, Nu Reg 003-2016 (Amendment R-044-2021)
Canada (Northwest Territories) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
OEL STEL [ppm]	0.15 ppm
Notations and remarks	Skin
Regulatory reference	Occupation Health and Safety Regulations R-039-2015 (R-013-2020)
Canada (Ontario) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
Notations and remarks	Skin
Regulatory reference	Ontario Occuational Exposure Limits under Regulation 833
Canada (Prince Edward Island) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
Notations and remarks	TLV® Basis: Vasodilation. Notations: Skin

glycerol trinitrate (55-63-0)	
Regulatory reference	ACGIH 2023
Canada (Saskatchewan) - Occupational Exposure Limits	
Local name	Nitroglycerin (NG)
OEL TWA [ppm]	0.05 ppm
OEL STEL [ppm]	0.15 ppm
Notations and remarks	Skin
Regulatory reference	The Occupational Health and Safety Regulations, 2020. Chapter S-15.1 Reg 10

diphenylamine (122-39-4)	
Canada (Alberta) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
Regulatory reference	Alberta Regulation 191/2021
Canada (Quebec) - Occupational Exposure Limits	
Local name	Diphenylamine
VEMP (OEL TWA)	10 mg/m³
Regulatory reference	S-2.1, r. 13 - Regulation respecting occupational health and safety
Canada (British Columbia) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)
Canada (Manitoba) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
Notations and remarks	TLV® Basis: Liver & kidney dam; hematologic eff. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
Notations and remarks	TLV® Basis: Liver & kidney dam; hematologic eff. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (Nova Scotia) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³

diphenylamine (122-39-4)	
Notations and remarks	TLV® Basis: Liver & kidney dam; hematologic eff. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (Nunavut) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Occupational Health and Safety Regulations, Nu Reg 003-2016 (Amendment R-044-2021)
Canada (Northwest Territories) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Occupation Health and Safety Regulations R-039-2015 (R-013-2020)
Canada (Ontario) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
Regulatory reference	Ontario Occuational Exposure Limits under Regulation 833
Canada (Prince Edward Island) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
Notations and remarks	TLV® Basis: Liver & kidney dam; hematologic eff. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (Saskatchewan) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	The Occupational Health and Safety Regulations, 2020. Chapter S-15.1 Reg 10
Canada (Yukon) - Occupational Exposure Limits	
Local name	Diphenylamine
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Yukon Occupational Health Regulations O.I.C. 1986/164

copper (7440-50-8)	
Canada (Alberta) - Occupational Exposure Limits	
Local name	Copper

copper (7440-50-8)	
OEL TWA	0.2 mg/m³ Fume 1 mg/m³ Dusts/mists, as Cu
Regulatory reference	Alberta Regulation 191/2021
Canada (Quebec) - Occupational Exposure Limits	
Local name	Copper (as Cu)
VEMP (OEL TWA)	0.2 mg/m³ Fume 1 mg/m³ Dusts & mists
Regulatory reference	S-2.1, r. 13 - Regulation respecting occupational health and safety
Canada (British Columbia) - Occupational Exposure Limits	
Local name	Copper, as Cu
OEL TWA	1 mg/m³ Dusts and mists 0.2 mg/m³ Fume
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)
Canada (Manitoba) - Occupational Exposure Limits	
Local name	Copper, as Cu
OEL TWA	0.2 mg/m³ (Fume) 1 mg/m³ (Dusts and mists)
Notations and remarks	TLV® Basis: Irr; GI; metal fume fever
Regulatory reference	ACGIH 2023
Canada (New Brunswick) - Occupational Exposure Limits	
Local name	Copper Dusts and mists, as Cu
OEL TWA	1 mg/m³
Notations and remarks	Irr; GI; metal fume fever
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
Local name	Copper, as Cu
OEL TWA	0.2 mg/m³ (Fume) 1 mg/m³ (Dusts and mists)
Notations and remarks	TLV® Basis: Irr; GI; metal fume fever
Regulatory reference	ACGIH 2023
Canada (Nova Scotia) - Occupational Exposure Limits	
Local name	Copper, as Cu
OEL TWA	0.2 mg/m³ (Fume) 1 mg/m³ (Dusts and mists)
Notations and remarks	TLV® Basis: Irr; GI; metal fume fever
Regulatory reference	ACGIH 2023
Canada (Nunavut) - Occupational Exposure Limits	
Local name	Copper, (as Cu)

copper (7440-50-8)	
OEL TWA	1 mg/m³ Dusts and mists 0.2 mg/m³ Fume
OEL STEL	0.6 mg/m³ Fume 3 mg/m³ Dusts and mists
Regulatory reference	Occupational Health and Safety Regulations, Nu Reg 003-2016 (Amendment R-044-2021)
Canada (Northwest Territories) - Occupational Exposure Limits	
Local name	Copper, (as Cu)
OEL TWA	0.2 mg/m³ Fume 1 mg/m³ Dusts and mists
OEL STEL	0.6 mg/m³ Fume 3 mg/m³ Dusts and mists
Regulatory reference	Occupation Health and Safety Regulations R-039-2015 (R-013-2020)
Canada (Ontario) - Occupational Exposure Limits	
Local name	Copper - Dusts and mists, as Cu
OEL TWA	1 mg/m³
Regulatory reference	Ontario Occuational Exposure Limits under Regulation 833
Canada (Prince Edward Island) - Occupational Exposure Limits	
Local name	Copper, as Cu
OEL TWA	0.2 mg/m³ (Fume) 1 mg/m³ (Dusts and mists)
Notations and remarks	TLV® Basis: Irr; GI; metal fume fever
Regulatory reference	ACGIH 2023
Canada (Saskatchewan) - Occupational Exposure Limits	
Local name	Copper, (as Cu)
OEL TWA	0.2 mg/m³ fume 1 mg/m³ dusts and mists
OEL STEL	0.6 mg/m³ fume 3 mg/m³ dusts and mists
Regulatory reference	The Occupational Health and Safety Regulations, 2020. Chapter S-15.1 Reg 10
Canada (Yukon) - Occupational Exposure Limits	
Local name	Copper
OEL TWA	0.2 mg/m³ Fume 1 mg/m³ Dusts and mists (as Cu)
OEL STEL	2 mg/m³ Dusts and mists (as Cu) 0.2 mg/m³ Fume
Regulatory reference	Yukon Occupational Health Regulations O.I.C. 1986/164

8.2. Appropriate engineering controls

Appropriate engineering controls: No additional information available.

Environmental exposure controls	Do not eat, drink or smoke during use. No additional information available.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
When using cartridge operated tools, sufficient ear protection must be worn.

Hand protection:
Not required for normal conditions of use

Eye protection:
Chemical goggles or safety glasses. CSA Z94.3:20

Skin and body protection:
When using cartridge operated tools, sufficient ear protection must be worn.

Respiratory protection:
Respiratory protection not required in normal conditions

Personal protective equipment symbol(s):

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
Appearance	No data available
Colour	According to product specification
Odour	Mixture contains one or more component(s) which have the following odour:
Odour threshold	No data available
pH	No data available
Relative evaporation rate (butylacetate=1)	No data available
Relative evaporation rate (ether=1)	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	No data available
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	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
Viscosity, kinematic	No data available
Explosive properties	Fire or projection hazard.
Explosive limits	No data available

9.2. Other information

Additional information	Not applicable Article

SECTION 10: Stability and reactivity

Reactivity	No additional information available
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Risk of explosion by shock, friction, fire or other sources of ignition. Heating may cause an explosion. At high temperatures : > 150 °C Response.
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.
Hardening time:	No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	Not classified (Based on available data, the classification criteria are not met)

glycerol trinitrate (55-63-0)	
LD50 oral	685 mg/kg
LD50 dermal rat	> 9560 mg/kg bodyweight (OECD 402 method)
LD50 dermal	9560 mg/kg
ATE CA (oral)	5 mg/kg bodyweight
ATE CA (Dermal)	5 mg/kg bodyweight
ATE CA (Gases)	100 ppmv/4h
ATE CA (vapours)	0.5 mg/l/4h
ATE CA (dust,mist)	0.05 mg/l/4h

diphenylamine (122-39-4)	
LD50 oral rat	> 800 mg/kg bodyweight
LD50 oral	2480 mg/kg
LD50 dermal	5000 mg/kg
ATE CA (oral)	100 mg/kg bodyweight
ATE CA (Dermal)	300 mg/kg bodyweight
ATE CA (Gases)	700 ppmv/4h

diphenylamine (122-39-4)	
ATE CA (vapours)	3 mg/l/4h
ATE CA (dust,mist)	0.5 mg/l/4h

zinc (7440-66-6)	
LD50 oral rat	> 2000 mg/kg (OECD 401 method)
LD50 oral	2500 mg/kg
LC50 Inhalation - Rat (Dust/Mist)	5.41 mg/l/4h
ATE CA (oral)	2500 mg/kg bodyweight
ATE CA (dust,mist)	5.41 mg/l/4h

Skin corrosion/irritation	Not classified (Based on available data, the classification criteria are not met)
Serious eye damage/irritation	Not classified (Based on available data, the classification criteria are not met)
Respiratory or skin sensitization	Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	Not classified (Based on available data, the classification criteria are not met)

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 (Based on available data, the classification criteria are not met)
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.
Symptoms/effects	Not expected to present a significant hazard under anticipated conditions of normal use.

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 (Based on available data, the classification criteria are not met)
Hazardous to the aquatic environment, long–term (chronic)	Not classified (Based on available data, the classification criteria are not met)

glycerol trinitrate (55-63-0)	
LC50 - Fish [1]	1.9 mg/l (96 h; Oncorhynchus mykiss; ASTM Designation E 729-80)
EC50 - Crustacea [1]	17.83 mg/l (48 h; Ceriodaphnia dubia; ASTM Designation E 729-80)
EC50 96h - Algae [1]	1.15 mg/l (Raphidocelis subcapitata; EPA TSCA Experimental Method 797.1060)

glycerol trinitrate (55-63-0)	
NOEC chronic fish	0.03 mg/l
NOEC chronic crustacea	3.23 mg/l (7 d; Ceriodaphnia dubia)

diphenylamine (122-39-4)	
EC50 - Crustacea [1]	2 mg/l (48 h; Daphnia magna; (OECD 202 method))
EC50 72h - Algae [1]	2.17 mg/l (Raphidocelis subcapitata; (OECD 201 method))
NOEC chronic algae	0.0273 mg/l

zinc (7440-66-6)	
LC50 - Fish [1]	169 µg/l (96h; Oncorrhynchus Mykiss)
EC50 - Crustacea [1]	< 0.1 µg/l (48h; Ceriodaphnia dubia)
ErC50 algae	0.15 mg/l
NOEC chronic fish	26 µg/L (30 d; Jordanella floridae)
NOEC chronic crustacea	48 µg/L (21d; Daphnia magna; (OECD 211 method))

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	Inherently biodegradable.
Biodegradation	92.2 % (84 h)

diphenylamine (122-39-4)	
Not rapidly degradable	
Persistence and degradability	Not readily biodegraded.
Biodegradation	26 % (28 d; (OECD 301D method))

zinc (7440-66-6)	
Not rapidly degradable	
Persistence and degradability	Not applicable for inorganic products.

12.3. Bioaccumulative potential

DX-Cartridge Clean-Tec	
Bioaccumulative potential	Not established.

glycerol trinitrate (55-63-0)	
Bioaccumulative potential	Low bioaccumulation potential (Log Kow < 4).

diphenylamine (122-39-4)	
Bioaccumulative potential	Low bioaccumulation potential (Log Kow < 4).
Partition coefficient n-octanol/water (Log Kow)	3.82 (20,2 °C)

zinc (7440-66-6)	
Bioaccumulative potential	Bioaccumulation unlikely.

12.4. Mobility in soil

glycerol trinitrate (55-63-0)	
Ecology - soil	Low potential for adsorption in soil.

diphenylamine (122-39-4)	
Surface tension	72.3 mN/m (20 °C; EU Method A.5)

12.5. Other adverse effects

Ozone: Not classified (Based on available data, the classification criteria are not met)

SECTION 13: Disposal considerations

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. At high temperatures may form : Response.

Additional information: 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 cartridges are used up: European waste catalogue: 20 03 01 - mixed municipal waste . The product can be disposed of as household or factory waste.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / RID

ADR	IMDG	IATA	RID
14.1. UN number or ID number			
UN 0014	UN 0014	UN 0014	UN 0014
14.2. UN proper shipping name			
CARTRIDGES FOR TOOLS, BLANK	CARTRIDGES FOR TOOLS, BLANK	Cartridges for tools, blank	CARTRIDGES FOR TOOLS, BLANK
Transport document description			
UN 0014 CARTRIDGES FOR TOOLS, BLANK, 1.4S, (E)	UN 0014 CARTRIDGES FOR TOOLS, BLANK, 1.4S	UN 0014 Cartridges for tools, blank, 1.4S	UN 0014 CARTRIDGES FOR TOOLS, BLANK, 1.4S
14.3. Transport hazard class(es)			
1.4S	1.4S	1.4S	1.4S

ADR	IMDG	IATA	RID
			
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			

14.6. Special precautions for user

Overland transport

Classification code (ADR)	1.4S
Special provisions (ADR)	364
Limited quantities (ADR)	5kg
Excepted quantities (ADR)	E0
Packing instructions (ADR)	P130, LP101
Mixed packing provisions (ADR)	MP23, MP24
Transport category (ADR)	4
Special provisions for carriage - Loading, unloading and handling (ADR)	CV1, CV2, CV3
Special provisions for carriage - Operation (ADR)	S1
Tunnel restriction code (ADR)	E

Transport by sea

Special provisions (IMDG)	364
Limited quantities (IMDG)	5 kg
Excepted quantities (IMDG)	E0
Packing instructions (IMDG)	P130
EmS-No. (Fire)	F-B
EmS-No. (Spillage)	S-X
Stowage category (IMDG)	01
Stowage and handling (IMDG)	SW1
Properties and observations (IMDG)	See glossary of terms in appendix B.
MFAG-No	114

Air transport

PCA Excepted quantities (IATA)	E0
PCA Limited quantities (IATA)	Forbidden
PCA limited quantity max net quantity (IATA)	Forbidden
PCA packing instructions (IATA)	130
PCA max net quantity (IATA)	25kg
Special provisions (IATA)	A802

Rail transport

Classification code (RID)	1.4S
Special provisions (RID)	364
Limited quantities (RID)	5kg

Excepted quantities (RID)	E0
Packing instructions (RID)	P130, LP101
Mixed packing provisions (RID)	MP23, MP24
Transport category (RID)	4
Special provisions for carriage – Packages (RID)	W2
Special provisions for carriage - Loading, unloading and handling (RID)	CW1
Colis express (express parcels) (RID)	CE1
Hazard identification number (RID)	1.4S

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. National regulations

DX-Cartridge Clean-Tec	
Canada DSL NDSL Flags	All components of this product are listed, or excluded from listing, on the Canadian Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

glycerol trinitrate (55-63-0)
Listed on the Canadian DSL (Domestic Substances List)

diphenylamine (122-39-4)
Listed on the Canadian DSL (Domestic Substances List)

cellulose nitrate (9004-70-0)
Listed on the Canadian DSL (Domestic Substances List)

copper (7440-50-8)
Listed on the Canadian DSL (Domestic Substances List)

zinc (7440-66-6)
Listed on the Canadian DSL (Domestic Substances List)

tetrazene (109-27-3)
Listed on the Canadian NDSL (Non-Domestic Substances List)

Plastics (PP / PA / PC)
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

SECTION 16: Other information

Issue date	10-02-2023
Revision date	10-02-2023
Supersedes	09-04-2023

Full text of H-statements:	
H300	Fatal if swallowed.
H301	Toxic 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.
H373	May cause damage to organs through prolonged or repeated exposure.

Abbreviations and acronyms:	
CAS-No.	Chemical Abstract Service number
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
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DNEL	Derived-No Effect Level
EC50	Median effective concentration
ED	Endocrine disrupting properties
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
IOELV	Indicative Occupational Exposure Limit Value
LC50	Median lethal concentration
LD50	Median lethal dose
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
N.O.S.	Not Otherwise Specified
OEL	Occupational Exposure Limit
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
STP	Sewage treatment plant

Abbreviations and acronyms:	
TLM	Median Tolerance Limit
TRGS	Technical Rules for Hazardous Substances
VOC	Volatile Organic Compounds
WGK	Water Hazard Class
vPvB	Very Persistent and Very Bioaccumulative
NOAEL	No-Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
LOAEL	Lowest Observed Adverse Effect Level

SDS CA HILTI

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.