

Safety Data Sheet

Product Safety Information Sheet

According to ICOP 2014 Issue date: 04/11/2021

Revision date: 4/11/2021

Supersedes: 15/01/2021

Version: 1.1

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

1.1.	Product identifier	
Trade name		DX-Cartridge Clean-Tec
Produ	ct form	Article
Produ	ct code	BU Direct Fastening
1.2.	Other means of identification	
No addi	tional information available	
1.3.	Recommended use of the chen	nical and restrictions on use
Recon	nmended use	CARTRIDGES FOR TOOLS, BLANK
Restri	ctions on use	For professional use only
1.4.	Supplier's details	
P.O. E 9494 \$ T +423		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	
Emerg	gency number	Schweizerisches Toxikologisches Informationszentrum – 24h Service +41 44 251 51 51 (international) +423 234 2111

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

2.2. Label elements

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

Hazard pictograms (GHS MY)

Signal word (GHS MY) Hazard statements (GHS MY) Precautionary statements (GHS MY)

MY - en



GHS01 Warning

- H204 Fire or projection hazard.
- 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.



Product Safety Information Sheet

According to ICOP 2014

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.

Product identifier	%
(CAS-No.) 9004-70-0	5 - 17
(CAS-No.) 55-63-0	2-7
(CAS-No.) 122-39-4	0.1 - 1
(CAS-No.) 7440-50-8	0 – 1
(CAS-No.) 7440-66-6	0 – 1
(CAS-No.) 109-27-3	0 – 1
	(CAS-No.) 9004-70-0 (CAS-No.) 55-63-0 (CAS-No.) 122-39-4 (CAS-No.) 7440-50-8 (CAS-No.) 7440-66-6

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



Product Safety Information Sheet

According to ICOP 2014

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 (CO2). 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.
6.1.1.	For non-emergency personnel	
Emerge	ncy procedures	Evacuate unnecessary personnel.
6.1.2.	For emergency responders	
Protective equipment Equip cleanup crew with proper protection.		Equip cleanup crew with proper protection.
Emerge	ncy 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 contamined area. Store away from other materials.

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, in	ncluding 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/m³ Wasap # Fume 1 mg/m³ 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
рН	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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Product Safety Information Sheet

According to ICOP 2014

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

SECTION 10: Stability and reactivity

Reactivity Chemical stability Possibility of hazardous reactions Conditions to avoid Incompatible materials Hazardous decomposition products No data available Stable under normal conditions Not established Direct sunlight,Extremely high or low temperatures,Heat,Sparks,Open flame,Overheating Strong acids,Strong bases 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)	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

2.1. 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 $^{\circ}$ 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)	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 tension71.8 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-octano 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)	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.			

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Ozone			Not classified
Other ad	dverse 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	ΙΑΤΑ	RID
14.1. UN number or ID number	r		
UN 0014	UN 0014	UN 0014	UN 0014
14.2. UN proper shipping nam	10		
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
1.4	1.4	1.4	1.4
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



According to ICOP 2014

ADR IMI No supplementary information available	DG	ΙΑΤΑ	RID	
14.6. Special precautions for user				
Overland transport				
Classification code (ADR)	1.4S			
Special provisions (ADR)	364			
Limited quantities (ADR)	5kg			
Packing instructions (ADR)	P130, LP101			
Mixed packing provisions (ADR)	MP23, MP24			
Transport category (ADR)	4			
Tunnel restriction code (ADR)	E			
Transport by sea				
Special provisions (IMDG)	364			
Limited quantities (IMDG)	5 kg			
Packing instructions (IMDG)	P130			
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)	130			
PCA max net quantity (IATA)	25kg			
Special provisions (IATA)	A802			
Rail transport				
Special provisions (RID)	364			
Limited quantities (RID)	5kg			
Packing instructions (RID)	P130, LP101			

Not applicable

14.8. 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		
Version	1.1	
Issue date	4/11/2021	
Revision date	04/11/2021	



According to ICOP 2014

Supe	rsedes	15/01/2	021	
Indica	ation of changes:			
Γ	Section	Changed item	Change	Comments
	2.2	Precautionary statements (GHS MY)	Modified	
	3.2	Composition/information on ingredients	Modified	
Abbre	eviations and acronym	s ADN - Eu Inland W		national Carriage of Dangerous Goods by
		ADR - Eu Road	uropean Agreement concerning the Inter	national Carriage of Dangerous Goods by
		ATE - Ac	ute Toxicity Estimate	
		BCF - Bio	oconcentration factor	
		CLP - Cla	assification Labelling Packaging Regulat	ion; Regulation (EC) No 1272/2008
		DMEL - D	Derived Minimal Effect level	
		DNEL - D	Derived-No Effect Level	
		EC50 - N	ledian effective concentration	
		IARC - Ir	ternational Agency for Research on Car	ncer
			ternational Air Transport Association	
		IMDG - Iı	nternational Maritime Dangerous Goods	
		LC50 - M	ledian lethal concentration	
		LD50 - M	ledian lethal dose	
		LOAEL -	Lowest Observed Adverse Effect Level	
		NOAEC	- No-Observed Adverse Effect Concentra	ation
		NOAEL -	No-Observed Adverse Effect Level	
		-	No-Observed Effect Concentration	
			Organisation for Economic Co-operation	and Development
			ersistent Bioaccumulative Toxic	
			Predicted No-Effect Concentration	
		REACH		and Restriction of Chemicals Regulation
		RID - Re	gulations concerning the International C	arriage of Dangerous Goods by Rail
			afety Data Sheet	5 5,
			ery Persistent and Very Bioaccumulative	
Full te	ext of H-statements:		,	
	Acute Tox. 1 (Dermal	I) Acute toxicity (derm	al), Category 1	
F	Acute Tox. 2 (Inhalati			
Ē	Acute Tox. 2 (Oral)	Acute toxicity (oral),	, Category 2	
	Acute Tox. 3 (Dermal	,		
	Acute Tox. 3 (Inhalati	ion) Acute toxicity (inhal	.), Category 3	

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



According to ICOP 2014

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.
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.