

DX-Cartridge

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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SECTION 1: Identification

1.1. Identification

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

1.2. Recommended use and restrictions on use

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

1.3. Supplier

Supplier

Hilti, Inc.
Legacy Tower, Suite 1000
7250 Dallas Parkway
Plano, TX 75024
USA
T +1 9724035800
1-800-879-8000 toll free - F +1 918 254 0522

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-Hour-Number) GBK/Infotrac ID 101022 (USA domestic) 1 800 535 5053 or international (001) 352 323 3500 |
|------------------|--|

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Explosives, Division 1.4 H204 Fire or projection hazard.
Full text of H-statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labelling

Hazard pictograms (GHS US)



Signal word (GHS US)

Hazard statements (GHS US)

Precautionary statements (GHS US)

Warning

H204 - Fire or projection hazard.

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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

P280 - Wear eye protection.

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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 which do not result in 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).

2.4. Unknown acute toxicity (GHS US)

Not applicable

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

Caliber 6.3/10 (cal. 25) green 120; yellow: 190; red: 230; black: 250

Caliber 5.5/16 (cal .22) grey: 105; brown: 120; green: 175; yellow: 210; red: 270

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 | Product identifier | % | GHS-US classification |
|-------------------------|--------------------|---------|---|
| 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 – 21 | Expl. 1.1, H201 |
| glycerol trinitrate | CAS-No.: 55-63-0 | 2 – 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 |

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| Name | Product identifier | % | GHS-US classification |
|----------------|---------------------|---------|---|
| lead styphnate | CAS-No.: 15245-44-0 | 0.1 – 3 | Unst. Expl., H200 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Repr. 1A, H360 STOT RE 2, H373 |
| barium nitrate | CAS-No.: 10022-31-8 | 0.1 – 3 | Ox. Sol. 2, H272 Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319 |
| copper | CAS-No.: 7440-50-8 | 0 – 2 | Not classified |
| zinc | CAS-No.: 7440-66-6 | 0 – 2 | Not classified |
| diphenylamine | CAS-No.: 122-39-4 | 0.1 – 1 | Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Eye Irrit. 2A, H319 STOT RE 2, H373 |
| tetrazene | CAS-No.: 109-27-3 | 0 – 1 | Unst. Expl., H200 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 general | In all cases of doubt, or when symptoms persist, seek medical attention. |
| First-aid measures after inhalation | Remove person to fresh air and keep comfortable for breathing. 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. Wash skin with plenty of water. |
| First-aid measures after eye contact | Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution. |
| First-aid measures after ingestion | Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center or a doctor if you feel unwell. |

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

| | |
|---|---|
| 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. |
| Symptoms/effects | The dismantling of the article is prohibited. Not expected to present a significant hazard under anticipated conditions of normal use. |

4.3. Immediate medical attention and special treatment, if necessary

No additional information available.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

| | |
|------------------------------|--------------------------|
| Suitable extinguishing media | Dry powder. Water spray. |
|------------------------------|--------------------------|

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Unsuitable extinguishing media Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

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

5.3. 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.

6.1.1. 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 the regulations, wipe down with water the contaminated area. Store away from other materials.
Other information Dispose of materials or solid residues at an authorized site.

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

Technical measures Ground/bond container and receiving equipment.
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
Information on mixed storage Keep away from : Ignition sources. Do not store with: Store according to local legislation.

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Storage area

Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| | |
|---|---|
| DX-Cartridge | |
| No additional information available | |
| cellulose nitrate (9004-70-0) | |
| No additional information available | |
| glycerol trinitrate (55-63-0) | |
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Nitroglycerin (NG) |
| ACGIH OEL TWA [ppm] | 0.05 ppm |
| Remark (ACGIH) | Vasodilation |
| Regulatory reference | ACGIH 2023 |
| USA - OSHA - Occupational Exposure Limits | |
| Local name | Nitroglycerin |
| OSHA PEL C | 2 mg/m ³ |
| OSHA PEL C [ppm] | 0.2 ppm |
| Regulatory reference (US-OSHA) | OSHA Annotated Table Z-1 |
| lead styphnate (15245-44-0) | |
| No additional information available | |
| barium nitrate (10022-31-8) | |
| No additional information available | |
| copper (7440-50-8) | |
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Copper, as Cu |
| ACGIH OEL TWA | 0.2 mg/m ³ (Fume) 1 mg/m ³ (Dusts and mists) |
| Remark (ACGIH) | TLV® Basis: Irr; GI; metal fume fever |
| Regulatory reference | ACGIH 2023 |
| USA - OSHA - Occupational Exposure Limits | |
| Local name | Copper |
| OSHA PEL TWA [1] | 0.1 mg/m ³ (Fume (as Cu)) 1 mg/m ³ (Dusts and mists (as Cu)) |
| Regulatory reference (US-OSHA) | OSHA Annotated Table Z-1 |

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| | |
|---|---|
| zinc (7440-66-6) | |
| USA - ACGIH - Occupational Exposure Limits | |
| ACGIH OEL TWA | 2 mg/m ³ |
| diphenylamine (122-39-4) | |
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Diphenylamine |
| ACGIH OEL TWA | 10 mg/m ³ |
| Remark (ACGIH) | Liver & kidney dam; hematologic eff |
| Regulatory reference | ACGIH 2023 |
| tetrazene (109-27-3) | |
| No additional information available | |
| Iron (7439-89-6) | |
| USA - ACGIH - Occupational Exposure Limits | |
| ACGIH OEL TWA | 10 mg/m ³ as iron oxide dust or fume |
| Plastics (PP / PA / PC) | |
| No additional information available | |

8.2. Appropriate engineering controls

| | |
|----------------------------------|--------------------------------------|
| Appropriate engineering controls | No additional information available. |
| Environmental exposure controls | Avoid release to the environment. |

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. ISO 16321-1 |
| 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):



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Thermal hazard protection:

No information available.

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. |
| Odour threshold | No data available |
| pH | No data available |
| Melting point | No data available |
| Freezing point | Not applicable |
| Boiling point | No data available |
| Flash point | Not applicable |
| Relative evaporation rate (butylacetate=1) | No data available |
| Flammability (solid, gas) | Non flammable. |
| 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 |
| Auto-ignition temperature | Not applicable |
| Decomposition temperature | No data available |
| Viscosity, kinematic | Not applicable |
| Viscosity, dynamic | No data available |
| Explosive limits | Not applicable |
| Explosive properties | Fire or projection hazard. |
| Oxidising properties | No data available |

9.2. Other information

| | |
|------------------------|---------------------------|
| Additional information | Not applicable Article |
|------------------------|---------------------------|

SECTION 10: Stability and reactivity

10.1. Reactivity

Fire or projection hazard.

10.2. Chemical stability

Stable under normal conditions.

10.3. 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.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Heat. Sparks. Open flame. Overheating. Avoid contact with hot surfaces. No flames, no sparks. Eliminate all sources of ignition.

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10.5. Incompatible materials

Strong acids. Strong bases.

10.6. 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 (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) |
| ATE US (dust,mist) | 0.05 mg/l/4h |

| lead styphnate (15245-44-0) | |
|------------------------------------|----------------------------------|
| LD50 oral rat | > 2000 mg/kg bodyweight |
| LC50 Inhalation - Rat (Dust/Mist) | > 5.05 mg/l/4h (OECD 403 method) |

| barium nitrate (10022-31-8) | |
|------------------------------------|--------------|
| LD50 oral | 355 mg/kg |
| ATE US (gases) | 4500 ppmv/4h |
| ATE US (vapours) | 11 mg/l/4h |
| ATE US (dust,mist) | 1.5 mg/l/4h |

| diphenylamine (122-39-4) | |
|---------------------------------|------------------------|
| LD50 oral rat | > 800 mg/kg bodyweight |
| LD50 dermal | 5000 mg/kg |
| ATE US (gases) | 700 ppmv/4h |
| ATE US (vapours) | 3 mg/l/4h |
| ATE US (dust,mist) | 0.5 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 sensitisation | 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) |

| diphenylamine (122-39-4) | |
|---------------------------------|--------------------------------------|
| IARC group | 2B - Possibly carcinogenic to humans |

| | |
|------------------------|---|
| 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) |

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| | |
|---|---|
| glycerol trinitrate (55-63-0) | |
| STOT-repeated exposure | May cause damage to organs through prolonged or repeated exposure. |
| lead styphnate (15245-44-0) | |
| 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) |
| Viscosity, kinematic | Not applicable |
| 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. |
|-------------------|--|

12.2. Persistence and degradability

| | |
|--------------------------------------|--|
| DX-Cartridge | |
| Persistence and degradability | Not established. |
| glycerol trinitrate (55-63-0) | |
| Not rapidly degradable | |
| Persistence and degradability | Inherently biodegradable. |
| Biodegradation | 92.2 % (84 h) |
| lead styphnate (15245-44-0) | |
| Not rapidly degradable | |
| barium nitrate (10022-31-8) | |
| Not rapidly degradable | |
| copper (7440-50-8) | |
| Not rapidly degradable | |
| zinc (7440-66-6) | |
| Not rapidly degradable | |
| Persistence and degradability | Not applicable for inorganic products. |

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| | |
|---------------------------------|---------------------------------|
| diphenylamine (122-39-4) | |
| Not rapidly degradable | |
| Persistence and degradability | Not readily biodegraded. |
| Biodegradation | 26 % (28 d; (OECD 301D method)) |
| tetrazene (109-27-3) | |
| Not rapidly degradable | |
| Iron (7439-89-6) | |
| Not rapidly degradable | |

12.3. Bioaccumulative potential

| | |
|---|--|
| DX-Cartridge | |
| Bioaccumulative potential | Not established. |
| glycerol trinitrate (55-63-0) | |
| Bioaccumulative potential | Low bioaccumulation potential (Log Kow < 4). |
| lead styphnate (15245-44-0) | |
| BCF - Fish [1] | 1.553 |
| Partition coefficient n-octanol/water (Log Kow) | -2.19 (20 °C) |
| zinc (7440-66-6) | |
| Bioaccumulative potential | Bioaccumulation unlikely. |
| diphenylamine (122-39-4) | |
| Partition coefficient n-octanol/water (Log Kow) | 3.82 (20,2 °C) |
| Bioaccumulative potential | Low bioaccumulation potential (Log Kow < 4). |

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

| | |
|-----------------------|--------------------------------------|
| Other adverse effects | No additional information available. |
| Other information | Avoid release to the environment. |

SECTION 13: Disposal considerations

13.1. Disposal methods

| | |
|-------------------------|---|
| Waste treatment methods | Dispose of contents/container in accordance with licensed collector's sorting instructions. |
|-------------------------|---|

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| | |
|--|---|
| 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 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 | | | |

14.6. Special precautions for user

Overland transport

| | |
|---|---------------|
| Classification code (ADR) | 1.4S |
| Special provisions (ADR) | 347 |
| Limited quantities (ADR) | 0 |
| Excepted quantities (ADR) | E0 |
| Packing instructions (ADR) | P134, LP102 |
| Mixed packing provisions (ADR) | MP23 |
| Transport category (ADR) | 4 |
| Special provisions for carriage - Loading, unloading and handling (ADR) | CV1, CV2, CV3 |
| Special provisions for carriage - Operation (ADR) | S1 |

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| Tunnel restriction code (ADR) | E |
| Transport by sea | |
| Special provisions (IMDG) | 347 |
| Limited quantities (IMDG) | 0 |
| Excepted quantities (IMDG) | E0 |
| Packing instructions (IMDG) | P134, LP102 |
| 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) | 134 |
| PCA max net quantity (IATA) | 25kg |
| CAO packing instructions (IATA) | 134 |
| CAO max net quantity (IATA) | 100kg |
| Special provisions (IATA) | A165 |
| ERG code (IATA) | 3L |

Rail transport

| | |
|---|-------------|
| Classification code (RID) | 1.4S |
| Special provisions (RID) | 347 |
| Limited quantities (RID) | 0 |
| Excepted quantities (RID) | E0 |
| Packing instructions (RID) | P134, LP102 |
| Mixed packing provisions (RID) | MP23 |
| 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. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory, except for:

| | | |
|--|-------------------|----------|
| Plastics (PP / PA / PC) | CAS-No. | 15 – 40% |
| Contains chemical(s) subject to TSCA 12b export notification if product is shipped outside the U.S | | |
| zinc | CAS-No. 7440-66-6 | 0 – 2% |

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| 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 | 2 – 10% |
| copper | CAS-No. 7440-50-8 | 0 – 2% |
| zinc | CAS-No. 7440-66-6 | 0 – 2% |
| diphenylamine | CAS-No. 122-39-4 | 0.1 – 1% |

| | |
|--------------------------------------|-------|
| glycerol trinitrate (55-63-0) | |
| CERCLA RQ | 10 lb |

| | |
|---------------------------|---------|
| copper (7440-50-8) | |
| CERCLA RQ | 5000 lb |

| | |
|-------------------------|---------|
| zinc (7440-66-6) | |
| CERCLA RQ | 1000 lb |

15.2. International regulations

CANADA

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

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

| | |
|---|--|
| lead styphnate (15245-44-0) | |
| Listed on the Canadian DSL (Domestic Substances List) | |

| | |
|---|--|
| barium nitrate (10022-31-8) | |
| 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) | |

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

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tetrazene (109-27-3)

Listed on the Canadian NDSL (Non-Domestic Substances List)

Iron (7439-89-6)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations**cellulose nitrate (9004-70-0)**

Listed on INSQ (Mexican National Inventory of Chemical Substances)

glycerol trinitrate (55-63-0)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

lead styphnate (15245-44-0)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

barium nitrate (10022-31-8)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

copper (7440-50-8)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

zinc (7440-66-6)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

diphenylamine (122-39-4)

Listed on IARC (International Agency for Research on Cancer)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Iron (7439-89-6)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations**DX-Cartridge**

| | |
|---|-----|
| U.S. - California - Proposition 65 - Carcinogens List | Yes |
| U.S. - California - Proposition 65 - Developmental Toxicity | Yes |

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|---|-----|
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female | Yes |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male | Yes |

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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Revision date

11/27/2023

Data sources

Supplier Safety Data Sheet.

| Full text of H-statements | |
|---------------------------|--|
| H200 | Unstable explosives. |
| H201 | Explosive; mass explosion hazard. |
| H204 | Fire or projection hazard. |
| H272 | May intensify fire; oxidiser. |
| 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. |

| 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 |

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| Abbreviations and acronyms | |
|----------------------------|---|
| 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 |
| 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 |

| Indication of changes: | | | |
|------------------------|--|----------|----------|
| General. | | | |
| Section | Changed item | Change | Comments |
| 3 | Composition/information on ingredients | Modified | |



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SDS US 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.