



SAFETY DATA SHEET

MK DIAMOND PRODUCTS, INC.
1315 STORM PARKWAY
TORRANCE, CA 90501
P: 800-421-5830
F: 310-539-5158

SECTION 1. IDENTIFICATION

PRODUCT IDENTIFIER

DIAMOND BLADES (METAL BONDED AND ELECTROPLATED), DIAMOND CORE BITS, DIAMOND CUP WHEELS AND DIAMOND GRINDING DISKS

RECOMMENDED USE

GRINDING, CUTTING AND DRILLING OF MASONRY AND CONCRETE PRODUCTS

MANUFACTURER / DISTRIBUTOR

MK DIAMOND PRODUCTS, INC.
1315 STORM PARKWAY
TORRANCE, CA 90501
P: 800-421-5830
F: 310-539-5158

EMERGENCY PHONE NUMBER

FOR CHEMICAL EMERGENCY SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL (CHEMTREC) 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

PRECAUTIONARY STATEMENTS

AVOID INHALATION OF DUSTS AS WELL AS PROLONGED AND REPEATED CONTACT WITH SKIN. MOST DIAMOND TOOLS ARE USED ALONG WITH WATER TO KEEP BLADES COOL AND TO DECREASE AIRBORNE CONTAMINANTS. FOR DRY SAWING AND GRINDING, MAINTAIN ADEQUATE VENTILATION OR USE LOCAL EXHAUST.

DESCRIPTION OF HAZARDS

DUST CREATED BY GRINDING AND/OR SAWING CAN CAUSE IRRITATION TO EYES, NOSE, THROAT AND SKIN. LONG TERM OVEREXPOSURE TO DUSTS CAN LEAD TO RESPIRATORY IMPAIRMENT. GRINDING OR SAWING MAY PRODUCE AN ELEVATED NOISE WHICH CAN AFFECT HEARING. PARTICLES OF VARIOUS SIZE EJECTED DURING GRINDING OR SAWING MAY POSE IMPACT HAZARDS TO EYES AND SKIN.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE DESCRIPTION	CAS#
DIAMOND	7782-40-3
NICKEL	7440-02-0
COBALT	7440-48-4
IRON	7439-89-6
COPPER	7440-50-8
TIN	7440-31-5
TUNGSTEN CARBIDE	12070-12-1
MANGANESE	7439-96-5

SECTION 4. FIRST AID MEASURES

INHALATION

IF SYMPTOMS DEVELOP (COUGHING, WHEEZING, SHORTNESS OF BREATH, ETC), REMOVE FROM EXPOSURE AND OBTAIN MEDICAL ASSISTANCE, AS NEEDED.

SKIN CONTACT

IF IRRITATION OCCURS, WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE, AS NEEDED.

EYE CONTACT

IF IRRITATION OCCURS, FLUSH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSISTANCE, AS NEEDED.

INGESTION

OBTAIN MEDICAL ASSISTANCE.

SECTION 5. FIRE FIGHTING MEASURES

SUITABLE (AND UNSUITABLE) EXTINGUISHING MEDIA: N/A

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL: N/A

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS: N/A

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTION, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES: N/A

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP: CLEAN-UP: N/A

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

MAINTAIN GOOD HOUSEKEEPING PRACTICES TO PREVENT ACCUMULATION OF DUST.

CONDITIONS FOR SAFE STORAGE

STORE BLADES, BITS, WHEELS AND DISK IN A DRY LOCATION.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

CHEMICAL NAME	OSHA PEL	ACGIH TLV (mg/m ³)
DIAMOND	N/A	N/A
NICKEL	1.0 mg/m ³	1.5 mg/m ³
COBALT	0.1 mg/m ³	0.02 mg/m ³
IRON	N/A	N/A
COPPER	0.1 mg/m ³	0.2 mg/m ³
TIN	2.0 mg/m ³	2.0 mg/m ³
TUNGSTEN CARBIDE	5.0 mg/m ³	5.0 mg/m ³
MANGANESE	5.0 mg/m ³	0.2 mg/m ³



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APPROPRIATE ENGINEERING CONTROLS

AVOID INHALATION OF DUSTS AS WELL AS PROLONGED AND REPEATED CONTACT WITH SKIN. DURING SAWING OR GRINDING, MAINTAIN ADEQUATE VENTILATION OR USE LOCAL EXHAUST FOR DUST CONTROL. HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICE. WASH HANDS BEFORE BREAKS AND AT THE END OF WORKDAY.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION

WEAR NIOSH APPROVED RESPIRATOR IF AIRBOURNE DUST CONCENTRATIONS EXCEED PEL OR TLV LEVELS.

SKIN PROTECTION

NOT NORMALLY REQUIRED. PROTECTIVE CLOTHING AND GLOVES MAY BE WORN TO LIMIT CONTACT.

EYE PROTECTION

USE NIOSH APPROVED FACE SHIELD OR SAFETY GLASSES.

HEARING PROTECTION

WEAR APPROVED HEARING PROTECTOR WHERE NOISE LEVELS DURING SAWING AND GRINDING EXCEED OSHA PRESCRIBED LEVELS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: SOLID

ODOR: ODORLESS

ODOR THRESHOLD: N/A

PH: N/A

MELTING POINT: 1166-2192F

BOILING POINT: N/A

FLASH POINT: N/A

EVAPORATION RATE: N/A

FLAMMABILITY: N/A

UPPER/LOWER FLAMMABILITY OR ELPLOSIVE LIMITS: N/A

VAPOR PRESSURE: N/A

VAPOR DENSITY: N/A

SPECIFIC GRAVITY: 7.8 - 12.4

SOLUBILITY IN WATER: INSOLUBLE

PARTITION COEFFICIENT: N/A **AUTO-IGNITION TEMP:** N/A **DECOMPOSITION TEMP:** N/A

VISCOSITY: N/A

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY: NO DATA AVAILABLE

CHEMICAL STABILITY: STABLE UNDER NORMAL USE AND STORAGE CONDITIONS.

PASSIBILITY OF HAZARDOUS REACTIONS: NO DATA AVAILABLE

CONDITIONS TO AVOID: KEEP AWAY FROM HUMIDITY AND EXCESSIVE HEAT

INCOMPATIBLE MATERIALS: STRONG ACIDS AND OXIDIZING AGENTS

HAZARDOUS DECOMPOSITION PRODUCTS: NONE

SECTION 11. TOXICOLOGICAL INFORMATION

COMPONENT INFORMATION

CHEMICAL NAME	LD50 TOXICITY	CARCINOGEN*
DIAMOND	MOUSE – 10,000 mg/kg	N
NICKEL	NO DATA AVAILABLE	Y
COBALT	RAT – 6,171 mg/kg	N
IRON	RAT – 7,500 mg/kg	N
COPPER	MOUSE – 3.5 mg/kg	N
TIN	RAT - >2,000 mg/kg	N
TUNGSTEN CARBIDE	RAT – 2,000 mg/kg	N
MANGANESE	RAT – 9,000 mg/kg	N

*PER NATIONAL TOXICOLOGY PROGRAM 13TH REPORT ON CARCINOGENS, OCT 2, 2014.

ROUTES OF ENTRY

ROUTE OF ENTRY, INHALATION: YES

ROUTE OF ENTRY, SKIN: NO

ROUTE OF ENTRY, INGESTION: NO

SYMPTOMS OF EXPOSURE

ACUTE: IRRITATION, COUGHING, WHEEZING, SHORTNESS OF BREATH

DELAYED / CHRONIC: RESPIRATORY CONDITIONS

SECTION 12. ECOLOGICAL INFORMATION

PRODUCTS HAVE NO ECOLOGICAL EFFECTS WHEN PROPERLY USED AND STORED. AN ENVIRONMENTAL HAZARD CANNOT BE EXCLUDED IN THE EVENT OF UNPROFESSIONAL HANDLING OR DISPOSAL. NO DATA AVAILABLE.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

USE STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE, PROVINCIAL AND LOCAL LAWS.

SECTION 14. TRANSPORT INFORMATION

NO SPECIFIC REGULATIONS FOR TRANSPORTATION ARE REQUIRED. MAKE SURE TO PROTECT PRODUCTS FROM DAMAGE DURING TRANSPORTATION.

SECTION 15. REGULATORY INFORMATION

CALIFORNIA PROP. 65 COMPONENTS

WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. COBALT CAS-NO. 7440-48-4, NICKEL CAS-NO. 7440-02-0, REVISION DATE 2007-09-28

SECTION 16. OTHER INFORMATION

SDS REVISION DATE: MAY 20, 2015

REASON FOR UPDATE: MANDATED UPDATE

DISCLAIMER

THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE TAKEN FROM SOURCES BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF; HOWEVER, THE COMPANY MAKES NO WARRANTY WITH RESPECT TO THE ACCURACY OF THE INFORMATION OR THE SUITABILITY OF THE RECOMMENDATIONS, AND ASSUMES NO LIABILITY TO ANY USER THEREOF.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity / Trade Name: Carbide Blades

Product Use: Abrasive materials used on metals, concrete, masonry and building materials.

Manufacturer: United Abrasives, Inc.
185 Boston Post Road
North Windham, CT 06256

Internet: www.unitedabrasives.com

Information Phone: (860) 456-7131

Emergency Phone: (860) 456-7131

SDS Date of Preparation: September 22, 2015

2. HAZARDS IDENTIFICATION

This product is a gun-metal gray solid with no odor.

EMERGENCY OVERVIEW

Dust may cause eye and respiratory irritation. Dust particles or filings may cause abrasive injury to the eyes. Chromium and nickel can cause skin and/or respiratory sensitization. Prolonged inhalation of respirable dust may cause lung damage. Fine dust generated by grinding may be spontaneously combustible or create a fire or explosion hazard.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	CAS #	%
Tungsten carbide	12070-12-1	Balance
Tantalum carbide	12070-06-3	0-20
Niobium carbide	12069-94-2	0-20
Titanium carbide	12070-08-5	0-20
Titanium nitride	25583-20-4	0-5
Vanadium carbide	12070-10-9	0-5
Cobalt	7440-48-4	0-30
Nickel	7440-02-0	0-30
Chromium	7440-47-3	0-5

4. FIRST AID MEASURES

Ingestion: If dust is swallowed, seek medical attention.

Inhalation: If overexposed to dust, remove victim to fresh air and get medical attention.

Eye Contact: Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists. Obtain immediate medical attention for foreign body in the eye.

Skin Contact: Wash dust from skin with soap and water. Launder contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use any media that is appropriate for the surrounding fire.

Special Firefighting Procedures: None needed.

Unusual Fire and Explosion Hazards: Fine dusts created during grinding or processing may be spontaneously combustible or create a fire or dust explosion hazard. Many materials create flammable/explosive dusts or turnings when machined.

Hazardous Combustion Products: None known.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all sources of ignition. Pick up, sweep up or vacuum and place in a container for disposal. If dust is vacuumed, use explosion-proof equipment. Minimize generation of dust. Notify authorities as required by local, state and federal regulations.

7. HANDLING AND STORAGE

Recommended Work Practices: Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling and use, especially before eating, drinking or smoking. Consider potential exposure to components of the base materials or coatings being machined. Refer to OSHA's substance specific standards for additional work practice requirements where applicable.

Dust generated during machining or processing may spontaneously combust or create a fire or dust explosion hazard. Use good housekeeping to prevent the accumulation of dusts around the workplace.

Storage: Store in a dry location.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Hazardous Component	OSHA PEL	ACGIH TLV
Tungsten carbide (as tungsten)	None Established	5 mg/m ³ TWA 10 mg/m ³ STEL
Tantalum carbide (as tantalum)	5 mg/m ³ TWA	None Established
Niobium carbide	None Established	None Established
Titanium carbide	None Established	None Established
Titanium nitride	None Established	None Established
Vanadium carbide	None Established	None Established
Cobalt	0.1 mg/m ³ TWA (as dust or fume)	0.02 mg/m ³ TWA
Nickel	1 mg/m ³ TWA	0.2 mg/m ³ TWA (inhalable)
Chromium	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA

Note: Consider also components of base materials and coatings being machined.

Ventilation: Use local exhaust or general ventilation as required to minimize exposure to dust and maintain the concentration of contaminants below the TLVs.

Respiratory Protection: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being brushed or machined in selecting proper respiratory protection. Refer to OSHA's specific standards for lead, cadmium, etc. where appropriate. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.

Gloves: Avoid skin contact with dust. Follow facility requirements regarding glove use to avoid safety hazard..

Eye Protection: Safety goggles or safety glasses with side shields.

Other: Protective clothing as needed to prevent contamination of personal clothing. Hearing protection may be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not Applicable

Solubility in Water: Insoluble

Specific Gravity: 11.0-15.5

Melting Point: Not Applicable

Appearance and Odor: Gun-metal-gray solid, no odor.

Flash Point: Non-Combustible

Vapor Pressure: (mm Hg) Not Applicable

Vapor Density: (Air = 1) Not Applicable

Evaporation Rate: Not Applicable

Flash Point: Non-Combustible

Flammable Limits: LEL: Not Applicable

UEL: Not Applicable

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Dust from machining could contain ingredients listed in Section 3 and other, potentially more hazardous components of the base material being machined or coatings applied to the base material.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

HEALTH HAZARDS:

Ingestion: None expected under normal use conditions. Swallowing large pieces may cause obstruction of the gastrointestinal tract.

Inhalation: Dust may cause respiratory irritation.

Eye: Dust may cause eye irritation. Dust particles or filings may cause abrasive injury to the eyes.

Skin: None expected under normal use conditions. Rubbing blades across the skin may cause mechanical irritation or abrasions.

Sensitization: Chromium and nickel can cause skin and/or respiratory sensitization.

Chronic: Long-term overexposure to dust may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Skin and/or respiratory sensitization may also occur. Chronic effects may be aggravated by smoking. Prolonged exposure to elevated noise levels during operations may affect hearing. A greater hazard, in most cases, is the exposure to the dust/fumes from the material or paint/coatings being machined. Most of the dust generated during machining is from the base material being processed and the potential hazard from this exposure must be evaluated.

Carcinogenicity: Nickel is listed as a Category 2B Possible human carcinogen by IARC and a Reasonably Anticipated to be a Human Carcinogen by NTP. None of the other components is listed as a carcinogen or potential carcinogen by OSHA, NTP, ACGIH, or IARC.

Medical Conditions Aggravated by Exposure: Employees with pre-existing respiratory disease may be at risk from exposure.

Acute Toxicity Values:

This product and its components are not acutely toxic.

Cobalt: Oral rat LD50 – 6171 mg/kg

12. ECOLOGICAL INFORMATION

No ecological data is available for this product. Dust generated may be hazardous to the environment.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to

determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

14. TRANSPORT INFORMATION

DOT Hazardous Materials Description:

Proper Shipping Name: Not Regulated

UN Number: None

Hazard Class/Packing Group: None

Labels Required: None

15. REGULATORY INFORMATION

SARA Section 311/312 Hazard Categories: Not Applicable in solid form. Dust generated from machining – Acute Health and Chronic Health

SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Toxic Chemical Release Reporting):

Nickel	7440-02-0	30% max
Chromium	7440-47-3	5% max.

California Proposition 65: WARNING You create dust when you machine materials such as metal. This dust often contains chemicals known to cause cancer, birth defects or other reproductive harm.

Canadian WHMIS Classification: Not a controlled product. This product meets the definition of a "manufactured article" under the WHMIS regulations.

This product has been classified under the CPR and this SDS discloses information elements required by the CPR.

16. OTHER INFORMATION

NFPA Hazard Rating: Health: 1
Fire: 0
Reactivity: 0

Date Previous Revision: 08/03/09

Date This Revision: 9/22/15

Revision Summary: Section 8: Exposure Limits; Comprehensive Review.

The preceding information is believed to be correct and current as of the date of preparation of this Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of United Abrasives, Inc., it is the user's obligation to assure safe use of this product.

1 Identification

- **Product identifier**
- **Trade name: DX Cartridge Clean-Tec**
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Cartridges for technical purpose
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Hilti, Inc.
5400 South 122nd East Ave.
US-Tulsa, OK 74146
Phone: (800) 879-8000
Fax: (800) 879-7000
Español: (800) 879-5000
- **Information department:**
df-hse@hilti.com
see section 16
- **Emergency telephone number:**
Chem-Trec
Tel.: 1 800 424 9300 (USA, PR, Virgin Islands, Canada)
Tel.: 703 527 3887 (Other countries)

2 Hazard(s) identification

- **Classification of the substance or mixture**
The dismantling of the article is prohibited.
This article contains hazardous substances or preparations not intended to be released under normal or reasonably foreseeable conditions of use.
Expl. 1.4 H204 Fire or projection hazard.
- **Additional information:**
Category of the pyrotechnic article: other pyrotechnic articles Cat. P1
(BAM EC-Type-Examination Certificate No. 0589.PYR.3802/12 or 0589.PYR.3798/12 respectively)

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS01

- **Signal word** Warning
- **Hazard statements**
H204 Fire or projection hazard.
- **Precautionary statements**
P210 Keep away from heat. - No smoking.
P250 Do not subject to grinding/shock/friction.
P280 Wear eye protection / face protection.
- **Classification system**
- **NFPA ratings (scale 0-4)**



Health = 0
Fire = 2
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

Trade name: DX Cartridge Clean-Tec

(Contd. of page 1)

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:**

Mixture of the substances listed below with nonhazardous additions.

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; black: 260

Caliber 6.8/18 (cal .27 long) green: 190; yellow: 220; blue: 300; red: 330; black: 410

- **Dangerous components:**

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: Single base powder, containing glyceroltrinitrate

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.

55-63-0	glycerol trinitrate	3-<10%
122-39-4	diphenylamine	0-1%

- **Additional information**

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.

For the wording of the listed risk phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**
- **General information** First aid measures only required by release of ingredients or generation of decomposition products.
- **After inhalation** Take affected persons into fresh air and keep quiet.
- **After skin contact** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
Monitor circulation, possible shock treatment
If necessary oxygen respiration treatment
If blue colouring appears (lips, ear-lobes, finger-nails), give oxygen treatment as quickly as possible.
In cases of irritation to the lungs, initial treatment with Dexamethason metered aerosol.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents** Not applicable
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
EN 12941 / EN 12942

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Keep away from ignition sources
Remove persons from danger area.
Ensure adequate ventilation

(Contd. on page 3)

Trade name: DX Cartridge Clean-Tec

(Contd. of page 2)

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Pick up scattered propellant cartridges only by hand.
Exposed ingredients must be swept up carefully and stabilised in a water container which has been labelled according the regulations. Wipe down the contaminated area with water.
- **Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling**
No special precautions are necessary if used correctly.
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**
Protect against electrostatic charges.
Keep ignition sources away - Do not smoke.
Prevent impact and friction.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
Keep in a cool, dry and dark place; 41 °F / 5 °C to 77 °F / 25 °C.
- **Information about storage in one common storage facility:**
Store away from flammable substances.
Store away from foodstuffs.
- **Further information about storage conditions:**
Store under lock and key and with access restricted to technical experts or their assistants only.
Protect from humidity and water.
- **Storage class 1**
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

55-63-0 glycerol trinitrate

PEL	Short-term value: C 2 mg/m ³ , C 0.2 ppm Skin
REL	Short-term value: 0.1 mg/m ³ Skin
TLV	Long-term value: 0.46 mg/m ³ , 0.05 ppm Skin

122-39-4 diphenylamine

REL	Long-term value: 10 mg/m ³
TLV	Long-term value: 10 mg/m ³

- **CAS No. Designation of material % Type Value Unit**

- **Additional Occupational Exposure Limit Values for possible hazards during processing:**

630-08-0 carbon monoxide

PEL	Long-term value: 55 mg/m ³ , 50 ppm
REL	Short-term value: C 229 mg/m ³ , C 200 ppm Long-term value: 40 mg/m ³ , 35 ppm
TLV	Long-term value: 29 mg/m ³ , 25 ppm BEI

124-38-9 carbon dioxide

PEL	Long-term value: 9000 mg/m ³ , 5000 ppm
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(Contd. on page 4)

Trade name: DX Cartridge Clean-Tec

(Contd. of page 3)

REL	Short-term value: 54.000 mg/m ³ , 30.000 ppm Long-term value: 9000 mg/m ³ , 5000 ppm
TLV	Short-term value: 54.000 mg/m ³ , 30.000 ppm Long-term value: 9000 mg/m ³ , 5000 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment**

· **General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Do not eat, drink, smoke or sniff while working.

Wash hands before breaks and at the end of work.

· **Breathing equipment:** Not required.

· **Protection of hands:** Not required.

· **Material of gloves** Not applicable

· **Penetration time of glove material** Not required.

· **Eye protection:**



Safety glasses

EN 166 / EN 170

· **Body protection:**



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

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· **Form:** Solid.

· **Color:** According to product specification

· **Odor:** Not determined

· **Odour threshold:** Not applicable

· **pH-value:** Not applicable.

· **Change in condition**

· **Melting point/Melting range:** Not determined.

· **Boiling point/Boiling range:** undetermined

· **Flash point:** Not applicable

· **Flammability (solid, gaseous)** Not determined.

· **Ignition temperature:** Not determined

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

· **Lower:** Not determined.

· **Upper:** Not determined.

· **Vapor pressure:** Not applicable.

· **Density:** Not determined

· **Relative density** Not determined.

· **Vapour density** Not applicable.

· **Evaporation rate** Not applicable.

(Contd. on page 5)

Trade name: DX Cartridge Clean-Tec

(Contd. of page 4)

- | | |
|---|--|
| · Solubility in / Miscibility with Water: | Not applicable |
| · Partition coefficient (n-octanol/water): | Not applicable |
| · Viscosity: | |
| dynamic: | Not applicable. |
| kinematic: | Not applicable. |
| · Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
Temperatures > 40 °C
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
acids
alkalis (caustic solutions).
- **Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides (NO_x)

11 Toxicological information

- **Information on toxicological effects**
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.
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **NTP (National Toxicology Program)**
None of the ingredients is listed.

12 Ecological information

- **Toxicity**
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.
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Generally not hazardous for water.
Do not allow product to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

(Contd. on page 6)

Trade name: DX Cartridge Clean-Tec

(Contd. of page 5)

 · **Other adverse effects** No further relevant information available.

13 Disposal considerations

 · **Waste treatment methods**

 · **Recommendation**

For disposal, local regulations issued by the authorities must be observed.

Completely discharged cartridges strips may be disposed of as household or factory waste. No hazardous waste.

 · **European waste catalogue:**

16 04 01*	waste ammunition
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 · **Uncleaned packagings:**

 · **Recommendation:** Non contaminated packagings can be used for recycling.

14 Transport information

 · **UN-Number**

 · **DOT, ADR, IMDG, IATA** UN0323

 · **UN proper shipping name**

 · **DOT, IMDG, IATA** Cartridge, power device

 · **ADR** UN0323 cartridge, power device

 · **Transport hazard class(es)**

 · **ADR, IATA**

 · **Class** 1 Explosive substances und articles

 · **Label** 1.4

 · **IMDG**

 · **Class** 1 Explosive substances und articles

 · **Packing group**

 · **ADR, IMDG, IATA** Void

 · **Environmental hazards:**

 · **Marine pollutant:** No

 · **Special precautions for user** Warning: Explosive substances und articles

 · **Danger code (Kemler):** -

 · **EMS Number:** F-B,S-X

 · **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

 · **UN "Model Regulation":** UN0323, cartridge, power device, 1.4S

15 Regulatory information

 · **Safety, health and environmental regulations/legislation specific for the substance or mixture**

 · **Section 355 (Extremely hazardous substances):**

None of the ingredients is listed.

 · **Section 313 (Specific toxic chemical listings):**

55-63-0	glycerol trinitrate
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122-39-4	diphenylamine
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 · **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

(Contd. on page 7)

Trade name: DX Cartridge Clean-Tec

(Contd. of page 6)

· **Proposition 65:**· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Carcinogenicity categories**· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

122-39-4 | diphenylamine

A4

· **MAK (German Maximum Workplace Concentration)**

55-63-0 | glycerol trinitrate

3B

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations**· **Information about limitation of use:** Employment restrictions concerning young persons must be observed.· **Chemical safety assessment:** not required.**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:**

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· **Contact:** Mechthild Krauter· **Date of preparation / last revision** 05/18/2015 / 2· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

Expl. 1.4: Explosives, Division 1.4