

COATING MATERIAL ON CEMENTED TUNGSTEN CARBIDE, CERMET, CERAMIC COATED BY CVD AND/OR PVD METHOD

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: COATING MATERIAL ON CEMENTED TUNGSTEN CARBIDE, CERMET, CERAMIC
COATED BY CVD AND/OR PVD METHOD

Product Description

Concerning MSDS for substrate, please refer to CEMENTED CARBIDE PRODUCT-MSDS, CERMET-MSDS
and CERAMIC-MSDS supplied by TaeguTec.

Recommended Use

Cutting tools for (Non)metal material

Restrictions on Use

None known.

Manufacturer Information

TaeguTec

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SECTION 2 HAZARDS IDENTIFICATION

GHS Classification

Respiratory sensitizer, Category 1

Skin sensitizer, Category 1

Specific Target Organ Toxicity - Single Exposure, Category 3 (respiratory system)

Specific Target Organ Toxicity - Repeated Exposure, Category 1 (lungs and respiratory system)

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statement(s)

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

May cause respiratory irritation

Causes damage to lungs and respiratory system through prolonged or repeated exposure.

Precautionary Statement(s)

Prevention

Do not breathe dust. Wash thoroughly after handling. In case of inadequate ventilation wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves. Use only outdoors or in a well-ventilated area. Do not eat, drink, or smoke when using this product.

Response

Get medical advice/attention if you feel unwell. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Other Hazards which do not Result in Classification

May form combustible dust concentrations in air (during handling or processing).

SECTION 3 COMPOSITION, INFORMATION ON INGREDIENTS

CAS No.	Component	Percent
25658-42-8	ZIRCONIUM NITRIDE	0 - 15
24094-93-7	CHROMIUM NITRIDE	0 - 15
7782-40-3	DIAMOND-LIKE CARBON	0-14
108398-79-4	TITANIUM ALUMINUM NITRIDE	0 - 12
12627-33-7	TITANIUM CARBO-NITRIDE	0 - 12
25583-20-4	TITANIUM NITRIDE	0 - 12
Not Available	TITANIUM ALUMINUM CHROME NITRIDE	0 - 12
Not Available	TITANIUM ALUMINUM CHROME SILICON NITRIDE	0 - 12
Not Available	ALUMINUM CHROME NITRIDE	0 - 12
12070-08-5	TITANIUM CARBIDE	0 - 10
1344-28-1	ALUMINUM OXIDE	0 - 10
Not Available	TITANIUM CARBO-OXIDE	0 - 1
Not Available	TITANIUM CARBIDE NITRIDE OXIDE	0 - 1

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Chromium compounds, Chromium, inorganic compounds, Zirconium compounds, n.o.s., Titanium compounds, Aluminium compounds, Aluminum insoluble compounds, Aluminium oxides, Aluminum Oxide (135152-65-7).

SECTION 4 FIRST AID MEASURES**Inhalation**

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eyes

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If swallowed, get medical attention.

Note to Physicians

For inhalation, consider oxygen.

Symptoms: Immediate

allergic reactions, respiratory tract irritation

Symptoms: Delayed

allergic reactions, lung damage, respiratory system damage

SECTION 5 FIRE FIGHTING MEASURES

See Section 9 for Flammability Properties

Flammable Properties

Negligible fire hazard. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Extinguishing Media

Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media

None known.

Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

SECTION 6 ACCIDENTAL RELEASE MEASURES**Personal Precautions**

Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions

Avoid release to the environment.

Methods for Containment

Avoid generating dust. If sweeping of a contaminated area is necessary, use a dust suppressant agent. Keep unnecessary people away, isolate hazard area and deny entry.

Cleanup Methods

Collect spill using a vacuum cleaner with a HEPA filter or wet and scoop up dry spills. Avoid sweeping spilled dry material. Eliminate ignition sources including sources of electrical, static or frictional sparks. Collect spilled material in appropriate container for disposal.

SECTION 7 HANDLING AND STORAGE**Handling Procedures**

Do not breathe dust. Wash thoroughly after handling. In case of inadequate ventilation wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves. Use only outdoors or in a well-ventilated area. Do not eat, drink, or smoke when using this product. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions.

Storage Procedures

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep container tightly closed. Store locked up. See original container for storage recommendations. Keep separated from incompatible substances.

Incompatibilities acids, bases, halocarbons, oxidizing materials

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION**Component Exposure Limits****ZIRCONIUM NITRIDE (25658-42-8)**

ACGIH: 5 mg/m³ TWA (as Zr, related to Zirconium compounds, n.o.s.)

10 mg/m³ STEL (as Zr, related to Zirconium compounds, n.o.s.)

NIOSH: 5 mg/m³ TWA (except Zirconium tetrachloride, as Zr, related to Zirconium compounds, n.o.s.)

10 mg/m³ STEL (except Zirconium tetrachloride, as Zr, related to Zirconium compounds, n.o.s.)

OSHA: 5 mg/m³ TWA (as Zr, related to Zirconium compounds, n.o.s.)

OSHA (Vacated): 10 mg/m³ STEL (as Zr, related to Zirconium compounds, n.o.s.)

5 mg/m³ TWA (as Zr, related to Zirconium compounds, n.o.s.)

Korea: 5 mg/m³ TWA (as Zr, Serial No. 489, related to Zirconium compounds, n.o.s.)

10 mg/m³ STEL (as Zr, Serial No. 489, related to Zirconium compounds, n.o.s.)

ALUMINUM OXIDE (1344-28-1)

ACGIH: 1 mg/m³ TWA (respirable fraction, related to Aluminum insoluble compounds)

OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)

OSHA (Vacated): 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)

Korea: 10 mg/m³ TWA (Serial No. 379)

Component Biological Limit Values

There are not biological limit values for any of this product's components.

Engineering Controls

Provide local exhaust ventilation system. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT**Eye Protection**

Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Body Protection

Wear appropriate chemical resistant clothing.

Hands Protection

Wear appropriate chemical resistant gloves.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100 or P100.

Any air-purifying full-facepiece respirator equipped with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100 or P100.

Any powered, air-purifying respirator with a high-efficiency particulate filter.

Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid	Appearance:	solid
Physical Form:	solid (the coated layer by physically and chemically)	Odor:	Not Available
Odor Threshold:	Not available	pH:	Not available
Melting/Freezing Point:	Not available	Boiling Point:	Not available
Flash Point:	Not flammable	Decomposition temp.:	Not available
Evaporation Rate:	Not available	LEL:	Not available
UEL:	Not available	Vapor Pressure:	Not available
Vapor Density (air = 1):	Not available	Density:	Not available
Spec. Gravity (water = 1):	Not available	Water Solubility:	Not available
Log KOW:	Not available	Auto Ignition temp.:	Not available
Viscosity:	Not available	Volatility:	Not available
Flammability (solid, gas):	Not available		

SECTION 10 STABILITY AND REACTIVITY

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Avoid accumulation of airborne dusts. Avoid contact with incompatible materials.

Possibility of Hazardous Reactions

Will not polymerize.

Incompatible Materials

acids, bases, halocarbons, oxidizing materials

Decomposition Products

miscellaneous decomposition products

SECTION 11 TOXICOLOGICAL INFORMATION**Likely Routes of Exposure**

inhalation, skin, eyes

Acute and Chronic Toxicity**Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

ALUMINUM OXIDE (1344-28-1)

Oral LD50 Rat >5000 mg/kg

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

DIAMOND-LIKE CARBON (7782-40-3)

Oral: 10 gm/kg Oral Mouse LD50

Immediate Effects

allergic reactions, respiratory tract irritation

Delayed Effects

allergic reactions, lung damage, respiratory system damage

Irritation/Corrosivity Data

respiratory tract irritation

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Target Organs**CHROMIUM NITRIDE (24094-93-7)**

immune system (sensitizer)

Serious Eye Damage/Eye Irritation

No data available.

Respiratory Sensitizer

Component data indicate the substance is sensitizing.

Dermal Sensitizer

Component data indicate the substance is sensitizing.

Carcinogenicity**Component Carcinogenicity****ZIRCONIUM NITRIDE (25658-42-8)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Zirconium compounds, n.o.s.)

ALUMINUM OXIDE (1344-28-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Aluminum insoluble compounds)

Mutagenic Data

No data available for the mixture.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

No data available for the mixture.

Tumorigenic Data

No data available for the mixture.

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Specific Target Organ Toxicity - Single Exposure

respiratory system

Specific Target Organ Toxicity - Repeated Exposure

lungs, respiratory system

Aspiration Hazard

No data available.

Medical Conditions Aggravated by Exposure

respiratory disorders, skin disorders and allergies

Additional Data

May cross the placenta.

SECTION 12 ECOLOGICAL INFORMATION**Persistence and Degradability**

No data available for the mixture.

Bioaccumulative Potential

No data available for the mixture.

Mobility in Environmental Media

No data available for the mixture.

Other Ecological Information

No additional information is available.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal Methods

If regulated under Waste Management Act, dispose the contaminated container and packaging in accordance with the regulations.

Disposal Precaution

Dispose in accordance with all applicable regulations including the disposal methods of contaminated container and packaging.

SECTION 14 TRANSPORT INFORMATION

IATA Information

No Classification assigned.

ICAO Information

No Classification assigned.

IMDG Information

No Classification assigned.

Special precautions

None known.

SECTION 15 REGULATORY INFORMATION

Component Analysis - Inventory

Component	CAS No.	KOREA
CHROMIUM NITRIDE	24094-93-7	No
ZIRCONIUM NITRIDE	25658-42-8	Yes
DIAMOND-LIKE CARBON	7782-40-3	Yes
TITANIUM NITRIDE	25583-20-4	Yes
TITANIUM CARBO-NITRIDE	12627-33-7	No
TITANIUM ALUMINUM NITRIDE	108398-79-4	No
ALUMINUM OXIDE	1344-28-1	Yes
TITANIUM CARBIDE	12070-08-5	Yes

Other Regulations**Toxic Release Inventory**

The following component(s) are listed on the Toxic Release Inventory (TRI):

CHROMIUM NITRIDE (24094-93-7)

TRI Groups I & II: ≥ 0.1 % (by weight, related to Chromium compounds)

ALUMINUM OXIDE (1344-28-1)

TRI Groups I & II: ≥ 1.0 % (by weight)

Industrial Safety and Health Act

The following substances are recognized as harmful according to the Korean Industrial Safety and Health Act:

CHROMIUM NITRIDE (24094-93-7)

Metals: 1 % (related to Chromium compounds)

Metals: 1 % (as Cr, related to Chromium, inorganic compounds)

Metals: 1 % (as Cr, related to Chromium compounds)

ZIRCONIUM NITRIDE (25658-42-8)

Metals: 1 % (related to Zirconium compounds, n.o.s.)

Metals: 1 % (as Zr, related to Zirconium compounds, n.o.s.)

Metals: 1 % (as Zr, related to Zirconium compounds, n.o.s.)

ALUMINUM OXIDE (1344-28-1)

Metals: 1 % (related to Aluminium compounds)

Metals: 1 % (as Al, related to Aluminium compounds)

Metals: 1 % (as Al, related to Aluminium compounds)

Toxic Chemicals Control Act (TCCA)

No component(s) of this product are identified in the Toxic Chemicals Control Act.

Dangerous Materials Safety Control Act

No component(s) of this product are identified in the Dangerous Materials Safety Control Act.

Wastes Management Act

No component(s) of this product are identified in the Waste Management Act.

Other requirements in domestic and other countries

No data available.

SECTION 16 OTHER INFORMATION**Key / Legend**

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

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Other Information

None known.

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