

## CERMET

### SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** CERMET

**Trade Names/Synonyms**

CEMENTED CARBIDE PRODUCT WITH COBALT/NICKEL BINDER

**Recommended Use**

Cutting tools for machining of various work materials, Fixtures and wear resistance parts for various material

**Restrictions on Use**

None known.

**Manufacturer Information**

TaeguTec

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### SECTION 2 HAZARDS IDENTIFICATION

**GHS Classification**

Skin Corrosion / Irritation, Category 2

Eye Damage / Irritation, Category 2A

Respiratory sensitizer, Category 1

Skin sensitizer, Category 1

Carcinogenicity, Category 1A

Toxic to Reproduction, Category 1B

Specific Target Organ Toxicity - Single Exposure, Category 1 (kidneys and respiratory system)

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

Specific Target Organ Toxicity - Repeated Exposure, Category 2 (blood and skeletal system)

Hazardous to the Aquatic Environment - Chronic Hazard, Category 3 (65 % unknown)

**GHS LABEL ELEMENTS**

**Symbol(s)**



**Signal Word**

DANGER

**Hazard Statement(s)**

Causes skin irritation

Causes serious eye irritation

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

May cause cancer

May damage fertility or the unborn child

Causes damage to kidneys and respiratory system.

Causes damage to respiratory system through prolonged or repeated exposure.

May cause damage to blood and bones through prolonged or repeated exposure.

Harmful to aquatic life with long lasting effects

**Precautionary Statement(s)****Prevention**

Do not breathe dust. Wash thoroughly after handling. Wear protective gloves and eye/face protection. Do not eat, drink, or smoke when using this product. In case of inadequate ventilation wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid release to the environment.

**Response**

IF exposed: Call a POISON CENTER or doctor/physician. IF INHALED: If breathing is difficult, oxygen should be administered by qualified personnel. 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. Take off contaminated clothing and wash before re-use. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**Storage**

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
12627-33-7	TITANIUM CARBO-NITRIDE	20 - 60
12070-12-1	TUNGSTEN CARBIDE	10 - 40
7440-02-0	NICKEL	0 - 20
7440-48-4	COBALT	0 - 15
7439-98-7	MOLYBDENUM	5 - 15
12710-36-0	NICKEL CARBIDE	0 - 10
12070-08-5	TITANIUM CARBIDE	0 - 10
12070-06-3	TANTALUM CARBIDE	0 - 10
12070-14-3	ZIRCONIUM CARBIDE	0 - 5

**Component Related Regulatory Information**

This product may be regulated, have exposure limits or other information identified as the following: Tungsten compounds, n.o.s., Nickel compounds, Molybdenum compounds, n.o.s., Cobalt compounds, Cobalt, inorganic compounds, Titanium compounds, Zirconium compounds, n.o.s..

**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. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

**Ingestion**

If swallowed, get medical attention.

**Note to Physicians**

For inhalation, consider oxygen.

**Symptoms: Immediate**

respiratory tract irritation, skin irritation, eye irritation, allergic reactions, kidney damage, respiratory system damage

**Symptoms: Delayed**

allergic reactions, cancer, reproductive effects, respiratory system damage, blood damage, bone disorders.

**SECTION 5 FIRE FIGHTING MEASURES**

See Section 9 for Flammability Properties

**Flammable Properties**

Negligible fire and explosion hazard in bulk form. 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**

dolomite, dry powder for metal fires, dry sand, graphite, soda ash, sodium chloride

Do not get water directly on material.

**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. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products.

**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 heat, flames, sparks and other sources of ignition. Do not touch spilled material. If sweeping of a contaminated area is necessary, use a dust suppressant agent.

**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. **Small spills:** Collect spilled material in appropriate container for disposal. Move containers away from spill to a safe area. **Large spills:** Wet down area with water. Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry.

**SECTION 7 HANDLING AND STORAGE**

**Handling Procedures**

Do not breathe dust. Wash thoroughly after handling. Wear protective gloves and eye/face protection. Do not eat, drink, or smoke when using this product. In case of inadequate ventilation wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. 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. Avoid generating dust. Store locked up. See original container for storage recommendations. Keep separated from incompatible substances.

**Incompatibilities** No data available

**SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION**

**Component Exposure Limits**

**NICKEL (7440-02-0)**

**ACGIH:** 1.5 mg/m<sup>3</sup> TWA (inhalable fraction)

**NIOSH:** 0.015 mg/m<sup>3</sup> TWA

**OSHA:** 1 mg/m<sup>3</sup> TWA

**OSHA (Vacated):** 1 mg/m<sup>3</sup> TWA

**Korea:** 1 mg/m<sup>3</sup> TWA (metal, Serial No. 045)

2 - Limited evidence of human or animal carcinogenicity (metal, Serial No. 045)

**MOLYBDENUM (7439-98-7)**

**ACGIH:** 10 mg/m<sup>3</sup> TWA (inhalable fraction); 3 mg/m<sup>3</sup> TWA (respirable fraction)

**OSHA (Vacated):** 10 mg/m<sup>3</sup> TWA

**COBALT (7440-48-4)**

**ACGIH:** 0.02 mg/m<sup>3</sup> TWA

**NIOSH:** 0.05 mg/m<sup>3</sup> TWA (dust and fume)

**OSHA:** 0.1 mg/m<sup>3</sup> TWA (dust and fume)

**OSHA (Vacated):** 0.05 mg/m<sup>3</sup> TWA (dust and fume)

**Korea:** 0.02 mg/m<sup>3</sup> TWA (metal dust and fume, Serial No. 519)

2 - Limited evidence of human or animal carcinogenicity (metal dust and fume, Serial No. 519)

**NICKEL CARBIDE (12710-36-0)**

**NIOSH:** 0.015 mg/m<sup>3</sup> TWA (except Nickel carbonyl, as Ni, related to Nickel compounds)

**ZIRCONIUM CARBIDE (12070-14-3)**

**ACGIH:** 5 mg/m<sup>3</sup> TWA (as Zr, related to Zirconium compounds, n.o.s.)  
10 mg/m<sup>3</sup> STEL (as Zr, related to Zirconium compounds, n.o.s.)

**NIOSH:** 5 mg/m<sup>3</sup> TWA (except Zirconium tetrachloride, as Zr, related to Zirconium compounds, n.o.s.)  
10 mg/m<sup>3</sup> STEL (except Zirconium tetrachloride, as Zr, related to Zirconium compounds, n.o.s.)

**OSHA:** 5 mg/m<sup>3</sup> TWA (as Zr, related to Zirconium compounds, n.o.s.)

**OSHA (Vacated):** 10 mg/m<sup>3</sup> STEL (as Zr, related to Zirconium compounds, n.o.s.)  
5 mg/m<sup>3</sup> TWA (as Zr, related to Zirconium compounds, n.o.s.)

**Korea:** 5 mg/m<sup>3</sup> TWA (as Zr, Serial No. 489, related to Zirconium compounds, n.o.s.)  
10 mg/m<sup>3</sup> STEL (as Zr, Serial No. 489, related to Zirconium compounds, n.o.s.)

**Component Biological Limit Values****COBALT (7440-48-4)**

**ACGIH:** 15 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (background); 1 µg/L Medium: blood Time: end of shift at end of workweek Parameter: Cobalt (background, semi-quantitative)

**Engineering Controls**

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure 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 with a faceshield. 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**

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

**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 heat, flames, sparks and other sources of ignition.

**Possibility of Hazardous Reactions**

Will not polymerize.

**Incompatible Materials**

No data available.

**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:

**NICKEL (7440-02-0)**

Oral LD50 Rat >9000 mg/kg

**COBALT (7440-48-4)**

Inhalation LC50 Rat >10 mg/L 1 h; Oral LD50 Rat 6170 mg/kg

**RTECS Acute Toxicity (selected)**

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

**COBALT (7440-48-4)**

**Oral:** 6171 mg/kg Oral Rat LD50

**Acute Toxicity Level****COBALT (7440-48-4)**

**Slightly Toxic:** ingestion

**Immediate Effects**

respiratory tract irritation, skin irritation, eye irritation, allergic reactions, kidney damage, respiratory system damage

**Delayed Effects**

allergic reactions, cancer, reproductive effects, respiratory system damage, blood damage, bone disorders



**Irritation/Corrosivity Data**

respiratory tract irritation, skin irritation, eye irritation

**RTECS Irritation**

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

**Local Effects****NICKEL (7440-02-0)**

**Irritant:** inhalation, skin

**COBALT (7440-48-4)**

**Irritant:** inhalation, skin, eye

**Target Organs****NICKEL (7440-02-0)**

immune system (sensitizer)

**COBALT (7440-48-4)**

immune system (sensitizer)

**NICKEL CARBIDE (12710-36-0)**

immune system (sensitizer)

**Serious Eye Damage/Eye Irritation**

eye irritation

**Respiratory Sensitizer**

Component data indicate the substance is sensitizing.

**Dermal Sensitizer**

Component data indicate the substance is sensitizing.

**Carcinogenicity****Component Carcinogenicity****NICKEL (7440-02-0)**

**ACGIH:** A5 - Not Suspected as a Human Carcinogen

**IARC:** Monograph 100C [2012]; Monograph 49 [1990] (evaluated as a group) (Group 1 (carcinogenic to humans), related to Nickel compounds)

**OSHA:** Present

**NTP:** Known Human Carcinogen (related to Nickel compounds)  
Reasonably Anticipated To Be A Human Carcinogen

**NIOSH:** potential occupational carcinogen

**COBALT (7440-48-4)**

**ACGIH:** A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

**IARC:** Monograph 86 [2006] (without tungsten carbide); Monograph 52 [1991] (Group 2B (possibly carcinogenic to humans))

**OSHA:** Present

**NICKEL CARBIDE (12710-36-0)**

**IARC:** Monograph 100C [2012]; Monograph 49 [1990] (evaluated as a group) (Group 1 (carcinogenic to humans), related to Nickel compounds)

**OSHA:** Present (related to Nickel compounds)

**NTP:** Known Human Carcinogen (related to Nickel compounds)

**NIOSH:** potential occupational carcinogen (related to Nickel compounds)

**ZIRCONIUM CARBIDE (12070-14-3)**

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

**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**

Available data characterizes components of this product as reproductive hazards.

**RTECS Reproductive Effects**

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

**NICKEL (7440-02-0)**

158 mg/kg Oral Rat TDLo (Multigeneration)

**MOLYBDENUM (7439-98-7)**

448 mg/kg Oral Mouse TDLo (Multigeneration); 5800 ug/kg Oral Rat TDLo (prior to copulation 30 week, pregnant 1-20 day(s)); 6050 ug/kg Oral Rat TDLo (prior to copulation 35 week)

**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, kidneys

**Specific Target Organ Toxicity - Repeated Exposure**

respiratory system, blood, skeletal system

**Aspiration Hazard**

No data available.

**Medical Conditions Aggravated by Exposure**

liver and/or kidney disorders, respiratory disorders, immune system disorders or allergies, skin disorders and allergies

**Additional Data**

Alcohol may enhance the toxic effects. May cross the placenta. May be excreted in breast milk.

**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
TITANIUM CARBO-NITRIDE	12627-33-7	No
TUNGSTEN CARBIDE	12070-12-1	Yes
NICKEL	7440-02-0	Yes
MOLYBDENUM	7439-98-7	Yes
COBALT	7440-48-4	Yes
TANTALUM CARBIDE	12070-06-3	Yes
TITANIUM CARBIDE	12070-08-5	Yes
NICKEL CARBIDE	12710-36-0	No
ZIRCONIUM CARBIDE	12070-14-3	Yes

**Other Regulations**

**Toxic Release Inventory**

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

**NICKEL (7440-02-0)**

TRI Groups I & II:  $\geq 0.1\%$  (by weight)

**COBALT (7440-48-4)**

TRI Groups I & II:  $\geq 0.1\%$  (by weight)

**NICKEL CARBIDE (12710-36-0)**

TRI Groups I & II:  $\geq 0.1\%$  (by weight, related to Nickel compounds)

**Industrial Safety and Health Act**

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

**TUNGSTEN CARBIDE (12070-12-1)**

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

Metals: 1 % (as W, related to Tungsten compounds, n.o.s.)

**NICKEL (7440-02-0)**

Carcinogens: 2 - Limited evidence of human or animal carcinogenicity(metal, Serial No. 045)

Metals: 1 %

Metals: 1 % (element)

Metals: 1 %

**COBALT (7440-48-4)**

Carcinogens: 2 - Limited evidence of human or animal carcinogenicity (metal dust and fume, Serial No. 519)

**Metals:** 1 %

**Metals:** 1 %

**Metals:** 1 % (dust, fume)

**NICKEL CARBIDE (12710-36-0)**

**Metals:** 1 % (related to Nickel compounds)

**ZIRCONIUM CARBIDE (12070-14-3)**

**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.)

**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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