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Designation of substance and/or preparation, company name	
Trade name	TMX® Carbide product based on tungsten Carbide with Cobalt binder
Use of substance / preparation	Metal working tools, metallurgical products, powder and indexable inserts
Manufacturer / Supplier	TMX by Toolmex
Street / POB	34 Talbot Road
Country code / ZIP code / Town	Northborough, MA 01532
Technical information contact	support@toolmex.com
Phone / Fax / Email	+1-508-653-8897 / +1-508-653-5110 / 844-869-8665 (844-TMX-TOOL) support@toolmex.com
Emergency information	+1-508-653-8897 / 844-869-8665 (844-TMX-TOOL)

MATERIAL SAFETY DATA SHEET

1 Potential Hazards

Statements of dangers and hazard(s) symbols:	 Harmful to health Xn
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Additional danger warning for persons and the environment:	Explaining labeling obligation – harmful to health Xn: During the grinding and/or heating of Carbide blanks and other Carbide products, some dust and vapors containing hazardous substances are produced which may be inhaled, swallowed or comes into contact with the skin or the eyes. The inhaled dust is toxic . Inhaling dust can result in the irritation and the inflammation of the respiratory tract. Repeated inhalation of aerosols containing Cobalt may narrow the respiratory tract. Extended inhalation of highly concentrated aerosols can cause pulmonary fibrosis or lung cancer. Contacting the skin, the substances may lead to skin irritation and rash. People who suffer from sensitization problems can have an allergic reaction. Cobalt is a strong skin sensitizer
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2 Composition / Information on ingredients

Chemical characterization:

Hazardous ingredients:

Substance:	CAS-No.	EINECS – No.	Range of concentration (weight amount in %)	Classification
Cobalt	7440-48-4	231-158	3 - 25 %	R42/43; R53
Tungsten Carbide	12070-12-1	235-123-0	> 50 %	
Chromium Carbide	12012-35-0	234-576-1	0 - 6 %	
Titanium Carbide	12070-08-5	235-120-4		
Tantalum Carbide	12070-06-3	235-118-3	<2%	
Niobium Carbide	12069-94-2			
Vanadium Carbide	12070-10-9		<0.5%	

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3 Occupational exposure limits				
Substance	CAS – No.	EINECS – No.	MAK/TRK mg/ m3	ACGHI TLV mg/m3
Cobalt	7440-48-4	231-158-0	0.1	0.02
Tungsten Carbide	12070-12-1	235-123-0	not defined	5
Chromium Carbide	12012-35-0	234-576-1	not defined	0.5
4 First aid measures				
General information	Workplace hygiene: No eating, no drinking, no smoking in the work area. Thoroughly wash your hands before eating, drinking or smoking			
In case of inhalation	In case of inhalation of dust, move affected person into fresh air. Give artificial respiration in case of respiratory arrest. If there is difficulty in breathing, oxygen is to be given, exclusively by medical staff. Call a physician immediately			
In case of skin contact	Flush with plenty of water using mild cleaning agent. Consult a physician if the skin irritation persists			
In case of eye contact	In case of eye irritation, rinse with plenty of water. Consult a physician if the irritation persists			
In case of ingestion	If major quantity of dust is swallowed, dilute with plenty of water; induce vomiting, and consult a physician			
5 Fire-fighting measures				
Suitable extinguishing media	Dry chemicals, CO2, foam or water. Do not allow the material to enter drains/ surface water/ ground-water			
Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases	Carbide blanks and/or Carbide products are not a fire hazard. The dust produced by grinding, however, can be flammable and carry the danger of fire, if accumulated			
Special protective equipment for fire-fighters	All fire-fighters shall wear self-contained breathing apparatus			
6 Accidental release measures				
Environmental precautions	In case of entry into ground-water, surface water, drains, or if contaminating the soil and/or vegetation, inform the authorities			
Methods for cleaning up	Apply dust-free cleaning methods. Collect the released material in appropriate containers for recycling or disposal			

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7 Additional information	
Advice on safe handling	Protect from moisture, acids, and bases
Precautions against fire and Explosion	No special requirements
8 Exposure controls/ Personal protection	
Occupational exposure limits resp. biological occupational exposure limits	
Exposure routes	
During the grinding and/or heating of Carbide blanks and other Carbide products, some dust and vapors containing hazardous substances are produced which may be inhaled, swallowed or come into contact with the skin or the eyes	
Preventive measures	
The formation and inhalation of dust must be avoided. Use sufficient local ventilation, thus reducing occupational exposure to a degree which is far below the national admissible limits	
Hand protection	
Glove material:	Repeated skin contact must be avoided. Wear suitable gloves. After handling the substances, the skin must be washed thoroughly
Coat thickness (mm):	–
Breakthrough time (min):	–
Eye protection	
If required, use eye glasses with side protection	
9 Physical and chemical properties	
Appearance	
Physical state:	Solid
Color:	Gray
Odor:	Odorless
Safety relevant data	
Danger of explosion:	No
Lower explosion limit:	–
Upper explosion limit:	–
Vapor pressure:	–
Density:	11.0 – 16.0 g/cm ³
Flow time:	
Water solubility:	No
pH value:	Not Applicable
Boiling temperature/boiling range:	–
Flash point:	Not Applicable
Ignition temperature:	–

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10 Stability and reactivity	
Conditions to be avoided	The substance is stable under normal conditions
Substances to be avoided	Avoid contact with strong acids
Hazardous decomposition products	–
11 Toxicological information	
Toxicity tests	
<p>Exposure Routes During the grinding and/or heating of Carbide blanks and other Carbide products, some dust and vapors containing hazardous substances are produced which may be inhaled, swallowed or come into contact with the skin or the eyes</p>	
Acute toxicity	
<p>Inhalation Inhaling dust/vapors can cause respiratory tract irritation and inflammation. It is reported that inhaling both Cobalt and Tungsten Carbide at the same time can lead to a considerably higher acute inhalation toxicity than in the case of inhaling only Cobalt. Tungsten Carbide and Cobalt: LC50, 4 hours, rat: 0.24 – 0.52 mg/l</p> <p>Skin contact contact with the skin may lead to skin irritation and rash. People who suffer from sensitization problems can have an allergic reaction</p> <p>Ingestion Cobalt: LD50 oral, rat: > 7000 mg/kg Tungsten Carbide: LD50 oral, rat: > 2000 mg/kg LD50 oral</p> <p>Eye contact Can lead to irritant effects on the eyes</p>	
Chronic toxicity	
<p>Inhalation Repeated inhalation of aerosols containing Cobalt may narrow the respiratory tract. Extended inhalation of highly concentrated aerosols can cause pulmonary fibrosis. As indicated by epidemiological studies, persons exposed to a high degree of Tungsten Carbide/Cobalt concentrations in the past had a higher incidence of lung cancer</p>	
12 Ecological information	
Ecotoxicity	
<p>Cobalt: Algae: IC50, 72 h: < 1 mg/l Daphnia: EC50, 48 h: > 100 mg/l Fish: LC50, 96 h: > 100 mg/l</p>	<p>Tungsten Carbide: Algae: IC50, 72 h: 130 mg/l (growth rate) Daphnia: EC50, 48 h: > 1000 mg/l Fish: LC50, 96 h: > 1000 mg/l – Soil life/soil biota: unknown – Plants and terrestrial animals: unknown</p>

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13 Disposal considerations			
Waste codes according to the waste catalogue ordinance (AVV)			
12	01	14*	Machining sludge containing hazardous substances The contained metals are valuable; they can be recycled Waste disposal according to national regulations Waste material exported to EU countries as scrap and/or in powder resp. sludge form must be treated according to the EC regulations 1013/206/2006
14 Transport information			
Land transport ADR / RID			
Classification: No dangerous transportation good pursuant to the regulations on carriage of dangerous goods			
Class:	–	Hazard number:	–
UN-No:	–	Classification code:	–
15 Regulatory information			
Chemical safety assessment			
–			
Labeling according to EC regulations			
Tungsten Carbide	CAS.No. 12070-12-1	EINECS.No. 235 -123-0	
Cobalt	CAS.No. 7440-48-4	EINECS.No 231-158-0	
Chromium Carbide	CAS.No. 12012-35-0	EINECS.No.234-576-1	
Molybdenum Carbide	CAS No. 12069-89-5	EINECS.No.235-115-7	
Vanadium Carbide	CAS No. 12070-10-9		
TRK			
² Production of Cobalt powder and catalysers; Carbide and magnet production			
³ Powder processing, pressing and mechanical processing of non-sintered workpieces – 0.5 mg/m			
Others:- 0.1 mg/m			
No hazard(ous) components for labeling:			
R-phrases:	R48/23: Toxic: extended inhalation can cause serious health problems R23: Toxic, if inhaled R40: Suspected of causing cancer R42/43: Possible sensitization due to inhalation and skin contact		
S-phrases:	S22: Avoid inhaling dust S24: Avoid skin contact S37: Wear suitable protection gloves		

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16 US Regulatory Information	
OSHA: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. Dust generated powder handling, pressing and forming may be hazardous as noted in Sections 2 and 3	
TSCA: Components of this product are listed on the TSCA inventory	
SARA: Chromium and Cobalt are subject to the requirements of Section 313 of Title III of Superfund Amendment and Reauthorization Act of 1986	
State Regulatory Information This product may contain Cobalt and/or Nickel, which is listed in California Proposition 65 as a known cancer-causing chemical	
17 EC regulations	
Water hazard class	
Class:	WGK 0 as solid
Technical instructions Air	
Sec.5.2.2, class II	
Hazardous incident regulations	
Not listed in the annexes	
Solvent regulations (31)	
Employment restrictions: No	
18 Additional information	
Applicable EC guidelines	
Guidelines 91/155/EEC	
Restrictions on use, recommended by the manufacturer: –	
R-phrases referred to in the sections 2 and 3: –	
Further information: –	
Data changed compared with the previous version: –	

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19 Other information / US

Users Responsibilities

This Material Safety Data Sheet provides information consistent with recommended applications of these products and anticipated activities involving the product. It is the user's responsibility to identify and protect against health and safety hazards presented by modification of cemented Carbide powders and products after manufacture. Individuals handling cemented Carbide powders should be informed of all relevant hazards and recommended safety precautions, and should have access to the information contained in this MSDS

Disclaimer

The information contained herein is based upon data provided by manufacturers and suppliers of raw materials used in the manufacture of cemented Carbide powders. The information is offered in good faith as accurate and correct, but no representations, guarantees, or warranties of any kind are made as to its accuracy or completeness, suitability for particular applications, hazards connected with the use of the powder, or the results to be obtained from the use thereof. User assumes all risk and liability of any use or handling of any material beyond **Toolmex Industrial Solutions** control. Variations in methods, conditions, equipment used to store, handle, or process the material, and hazards connected with the use of the powder are solely the responsibility of the user and remain at its sole discretion

This MSDS is intended to be used solely for the purpose of satisfying informational requests made pursuant to Title 29 of the Code of Federal Regulations, Section 1910.1200 et seq. It is not intended to pre-empt, replace, or expand the terms contained in the **Toolmex Industrial Solutions** Conditions of Sale. Compliance with all applicable federal, state, and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe workplace, to examine all aspects of its operation, and to determine if or where precautions, in addition to those described herein, are required. This information may not be valid for these powders when manufactured with alternate materials meeting the special requirements of a particular user

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