

Hard metal product based on wolfram carbide with cobalt binding metal

1. Material/preparation name and company name

Name of material or preparation:

hard metal products based on wolfram carbide with cobalt binding metal

Supplier:

 KOMET GROUP GmbH
 Zeppelinstr. 3
 74354 Besigheim, Germany

 Phone/Emergency phone: + 49 - 7143 - 373 - 0
 Fax: + 49 - 7143 - 373 - 233

2. Potential hazards

During regrinding or in the event of heavy wear, constituents can contaminate the air or the cooling lubricant. In this case the air threshold values must be complied with as described in section 15.

3. Composition/constituent information

Hard metal products, essentially consisting of wolfram carbide with cobalt as the binding metal, where applicable with the addition of titanium carbide, tantalum/niobium carbide and/or vanadium carbide.

Material	CAS no.	Content (% by weight)	Hazard symbol	R phrases
Wolfram carbide (WC)	12070-12-1	40 - 97		
Cobalt (Co)	7440-48-4	3 - 30	Xn	42/43, 53
Titanium carbide (TiC)	12070-08-5	0 - 15		
Tantalum carbide (TaC)	12070-06-3	0 - 15		
Niobium carbide (NbC)	12069-94-2	0 - 5		
Vanadium carbide (VC)	12070-10-9	0 - 1		

4. First aid measures

None

5. Firefighting measures

Sintered hard-metal products do not present a fire risk.

6. Action to be taken in the event of unintentional release

None

7. Handling and storage

Storage: Protect from moisture, acids and alkalis.

8. Exposure limits and personal protection equipment

Threshold values: See section 15

Skin protection: The use of hard-metal products does not require any special skin protection.

9. Physical/chemical properties

Appearance: grey solid, possibly with yellow or black hard material coating
Smell: odourless
pH value: not applicable
Melting point: 1,495 °C
Boiling point: 2,870 °C
Flash point: not applicable
Risk of explosion: no
Density: 13.5 – 15.7 g/cm³
Water solubility: none

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10. Stability and reactivity

Stability:	Stable at normal temperature and pressure conditions.
Hazardous decomposition products:	Forms hydrogen when exposed to acids (risk of explosion) In the event of thermal decomposition, carbon monoxide/carbon dioxide, wolfram trioxide and cobalt oxide can occur
Conditions to be avoided:	Temperatures above the melting point must be avoided

11. Toxicology information

General:	Sintered products are not known to be hazardous to health
Co:	The International Cancer Research Centre (IARC) categorises cobalt and cobalt compounds as category 2B carcinogens (potentially carcinogenic for human beings). Cobalt is not categorised as carcinogenic in the European Union. In Germany, the Hazardous Materials Committee (Ausschuss für Gefahrstoffe) categorises cobalt as a category 3 carcinogen (carcinogenic in animal testing). Cobalt can cause allergic reactions in the skin, eyes and lungs.
Hard-metal dust:	The International Cancer Research Centre (IARC) categorises hard-metal dust (consisting of cobalt and wolfram carbide) as category 2A carcinogens (probably carcinogenic for human beings). Hard-metal dust can cause allergic reactions and irritation in the lungs, skin and eyes. Chronic inhalation of cobalt in combination with other substances such as wolfram carbide, diamond, iron, etc. can cause lung fibrosis.
WC acute toxicity:	NOEL oral, rat: > 2,000 mg/kg
Co acute toxicity:	LD50 oral, rat: 7,000 mg/kg LC50 inhalative, rat: > 10 mg/l, 1 hr exposure

12. Ecological details

Aquatic toxicity:	Acute fish toxicity 96 hrs LC ₀ (brachydanio rerio): 1,000 mg/l (for cobalt) 96 hrs NOEC (brachydanio rerio): 100 mg/l (for wolfram monocarbide)
	Acute daphnia toxicity: 48 hrs EC ₀ (daphnia magna): 100 mg/l (for cobalt) 48 h EC ₀ (daphnia magna): 580 mg/l (for wolfram monocarbide) 48 hrs EC ₅₀ (daphnia magna): > 1,000 mg/l (for wolfram monocarbide)
	Algae toxicity (cobalt): Biomass increase: 72 hrs NOEC (selenastrum capricornutum) : 0.0053 mg/l Biomass increase: 72 hrs EC ₁₀ (selenastrum capricornutum) : 0.006 mg/l Biomass increase: 72 hrs EC ₅₀ (selenastrum capricornutum) : 0.035 mg/l Growth rate: 72 hrs EC ₁₀ (selenastrum capricornutum) : 0.022 mg/l Growth rate: 72 hrs EC ₅₀ (selenastrum capricornutum) : 0.027 mg/l
	Algae toxicity (wolfram monocarbide): Biomass increase: 72 hrs EC ₅₀ (selenastrum capricornutum) : 80 mg/l Growth rate: 72 hrs EC ₅₀ (selenastrum capricornutum) : 130 mg/l
	Bacteria toxicity: 3 hrs EC ₅₀ (activated sludge) : > 50 mg/l (cobalt) 3 hrs EC ₂₀ (activated sludge) : > 1,000 mg/l (wolfram monocarbide)
Water hazard classification:	WGK 0 as solid

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13. Notes on disposal

The metals in these materials are valuable and can be reclaimed. Return to the manufacturer or suitable metal dealers. Dispose of in accordance with national regulations.

Residual material key: Within a member state of the European Community EC:
120103 or 120104 or 120114 or 120115 or 120118

Residual material in the form of scrap, sludge or powder is subject to regulation 1013/2006 EC for exports within the EU or in OECD states. The residual materials are managed under keys B1010 (scrap) or B1031 (sludge or powder).

14. Transport information

Not a hazardous material as far as transport regulations are concerned.

15. Regulations

Does not require labelling within the meaning of EC directive 99/45/EC

Threshold values: For the release of hard-metal constituents
within Germany
General dust limit: 6 mg/m³
Co: 0.1 mg/m³ in the total dust; peak value limit - category 4; EKA (exposure equivalent for carcinogenic materials) urinary value 60 µg/l, whole-blood 5 µg/l
NbC: Air threshold value 5 mg/m³ (inhalable fraction, insoluble niobium compounds)
WC: Air threshold value 5 mg/m³ (total dust, insoluble wolfram compounds);
Air threshold value 1 mg/m³ (total dust, soluble wolfram compounds)
VC: Air threshold value 0.5 mg/m³ (total dust, measured as vanadium metal)

Note: Observe national regulations.

16. Other details

This safety data sheet has been produced in accordance with EC directive 2006/1907/EC and its modifications. The information is based on the current state of knowledge and experience. The safety data sheet describes products with regard to safety requirements. The information does not constitute an assurance of characteristics and does not justify a contractual legal relationship.