

# MATERIAL SAFETY DATA SHEET

Issued: 2010-7-12

Internal No: TIGRA / MSDcarb

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## 1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

### PRODUCT

Hard metal blank containing primarily tungsten carbide with cobalt binder

### COMPANY

**Company:** Tigra Hartstoff GmbH  
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**Issued by:** Dr. Harald Feld

## 2. COMPOSITION / INFORMATION OF THE INGREDIENTS

Substance	CAS No	EINECS No	Concentration range (% by weight)	Classification
Cobalt	7440-48-4	231-158-0	3 - 30 %	Xn (Harmful); R42/43
Tungsten carbide	12070-12-1	235 -123-0	> 50 %	-
Chromium carbide	12012-35-0	234-576-1	0 - 6 %	-
Molybdenum carbide	12069-89-5	235-115-7	0 - 6 %	-

## 3. HAZARDS IDENTIFICATION

Grinding or heating a hard metal blank or a hard metal product will produce dusts or fumes with dangerous ingredients that can be inhaled, swallowed or come in contact with the skin or eyes. The dust is toxic by inhalation. Inhalation may cause irritation and inflammation in the airways. Repeated inhalation of aerosols containing cobalt may cause obstruction in the airways. Long time inhalation of increased concentrations may cause lung fibrosis. Skin contact can cause irritation and rash. Sensitized persons may experience an allergic reaction. Cobalt is a potent skin sensitizer.

## 4. FIRST AID MEASURES

### INHALATION

Remove from exposure.

### SKIN CONTACT

Wash with soap and water

### EYE CONTACT

If irritation occurs, flush with large amounts of water. If irritation persists, seek medical attention.

### INGESTION

If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting and seek medical attention.

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## 5. FIRE-FIGHTING MEASURES

Hard metal blanks or products are no fire hazards. However, dusts produced from grinding may be flammable and may pose a fire hazard if allowed to accumulate. Self-contained breathing apparatus should be used by all fire-fighting personnel. Extinguishing media: Dry chemical, CO<sub>2</sub>, foam or water. Prevent the material from entering drain and watercourses.

## 6. ACCIDENTAL RELEASE MEASURES

Clean up using methods which avoid dust generation. Contain the spill in suitable containers for recovery or disposal. Inform relevant authorities if spillage of hard metal dust has entered watercourse or sewer or has contaminated soil or vegetation.

## 7. HANDLING AND STORAGE

No special requirements

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### ROUTES OF EXPOSURE

Grinding or heating a hard metal blank or a hard metal product will produce dusts or fumes with dangerous ingredients that can be inhaled, swallowed or come in contact with the skin or eyes.

### PREVENTIVE MEASURES

Avoid formation and inhalation of dust. Use local exhaust ventilation that is adequate to limit personal exposure well below the nationally authorised limits.

### RESPIRATORY PROTECTION

If ventilation is not available or adequate, use respirators nationally approved for the purpose.

### EYE PROTECTION

Use safety goggles or glasses with side shields when necessary.

### HAND PROTECTION

Avoid repeated skin contact. Wear suitable gloves. Wash skin thoroughly after handling.

### SKIN PROTECTION

Use suitable protective clothing. Launder clothing as needed.

### PERSONAL HYGIENE

Do not eat, drink or smoke in the working area. Wash skin thoroughly before eating, drinking or smoking.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid
Colour:	Varying

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## 10. STABILITY AND REACTIVITY

The product is stable under normal circumstances. Avoid contact with strong acids.

## 11. TOXICOLOGICAL INFORMATION

### ROUTES OF EXPOSURE

Grinding or heating a hard metal blank or a hard metal product will produce dusts or fumes with dangerous ingredients that can be inhaled, swallowed or come in contact with the skin or eyes.

### ACUTE TOXICITY

#### Inhalation

Inhalation may cause irritation and inflammation in the airways. A significantly higher acute inhalation toxicity has been reported at simultaneous inhalation of cobalt and tungsten carbide compared to inhalation of cobalt alone.

Tungsten carbide and cobalt: LC<sub>50</sub>, 4h, rat: 0,24 - 0,52 mg/l

#### Skin contact

Skin contact can cause irritation and rash. Sensitized persons may experience an allergic reaction.

#### Ingestion

Cobalt: LD<sub>50</sub> oral, rat: >7000 mg/kg

Tungsten carbide: LD<sub>50</sub> oral, rat: >2000 mg/kg

#### Eye contact

Eye contact may cause irritation.

### CHRONIC TOXICITY

#### Inhalation

Repeated inhalation of aerosols containing cobalt may cause obstruction in the airways. Long time inhalation of increased concentrations may cause lung fibrosis.

#### Skin contact

Cobalt is a potent skin sensitizer. Allergic contact dermatitis due to cobalt has been reported in several studies.

## 12. ECOLOGICAL INFORMATION

### Toxicity

#### - Aquatic toxicity

Cobalt: Algae: IC<sub>50</sub>, 72 h: < 1 mg/l  
Daphnia: EC<sub>50</sub>, 48 h: > 100 mg/l  
Fish: LC<sub>50</sub>, 96 h: > 100 mg/l

Tungsten carbide: Algae: IC<sub>50</sub>, 72 h: 130 mg/l (growth rate)  
Daphnia: EC<sub>50</sub>, 48 h: > 1000 mg/l  
Fish: LC<sub>50</sub>, 96 h: > 1000 mg/l

#### - Soil organisms: Unknown

#### - Plants and terrestrial animals: Unknown

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## 13. DISPOSAL CONSIDERATIONS

Waste of hard metal dust or sludge is hazardous waste if the cobalt content is 25 % or more according to directive 91/689/EEC. There may be national exceptions. Solid waste is not hazardous waste.

## 14. TRANSPORT INFORMATION

Dangerous goods: The material is not dangerous goods.

## 15. REGULATORY INFORMATION

### Classification

T - Toxic

### Limit values for exposure at the place of work

Substance	CAS No	EINECS No	UK OEL, mg/m <sup>3</sup>	OSHA PEL mg/m <sup>3</sup>	ACGIH TLV -TWA mg/m <sup>3</sup>
Cobalt	7440-48-4	231-158-0	0,1	0,1	0,02
Tungsten carbide	12070-12-1	235 -123-0	5	Not established	5
Chromium carbide	12012-35-0	234-576-1	Not established	0,5	0,5
Molybdenum carbide	12069-89-5	235-115-7	Not established	15	10

### Risk phrases

R23; Toxic by inhalation;

R42/43; May cause sensitization by inhalation and skin contact

### Safety phrases

S22; Do not breathe dust

S24; Avoid contact with skin

S37; Wear suitable gloves

Other national regulations may be applicable to this preparation.