

**Stellram**

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Beitzinger
KCR

Material Safety Data Sheet

SECTION 1. CHEMICAL IDENTIFICATION

Date Last Revised: April 2003

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Name:	Coated Tungsten Carbide Grades
Synonyms:	MP15, MP23, MP23, MP23M, MP26, MP37, MP48, MP51, MP91M, NL20, NL25, NL26, NL30, NL92, NL40, PFZ, TP21, HN+, SP4036, SP3036, SP1032, SP3064, SP4064, SP6564, SFZ, DFZ, CFZ, X500
CAS #:	Tungsten Carbide (12070-12-1), Tungsten Carbide w/ 15% Co (11107-01-0), Tungsten Carbide w/ 8% Co (12718-69-3), Titanium Carbide (12070-08-5), Aluminum Oxide (1344-28-1)

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family: Refractory Metal Alloy

Chemical Formula: WC+Co+ (TiC/TaC/NbC) coated with one of the following substances: Titanium Nitride, Titanium Carbonitride, Aluminum Oxide, Hafnium Nitride, Zirconium Nitride.

Material	%	OSHA TWA	ACGIH TWA	ACGIH STEL
Tungsten Carbide (as W dust)	67 to 97	5 (insoluble) 1 (soluble)	5 (insoluble) 1 (soluble)	10 (insoluble) 3 (soluble)
Tantalum Carbide (as Ta dust)	0 to 50	5	5	not established
Cobalt	3 to 30	0.1	0.02	not established
Titanium Carbide (as Ti)		not established	not established	not established
Niobium Carbide (as Nb)		not established	not established	not established

(all exposure limits in mg/m³ for airborne dust, mist, or fume)

SECTION 3. HAZARDS IDENTIFICATION (Information presented is for hazards associated with exposure to dust, mists, or fume only.)

The terms "hazardous" and "hazardous materials" as used within this MSDS should be interpreted as by, and in accordance with, the OSHA Hazard Communication Standard (29CFR1910.1200) including cited appendices, lists, references, etc.

Primary routes of entry:	Inhalation, ingestion, skin or eye contact (for dusts, mists, powder and fume)
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Effects of overexposure:	No specific data, testing or information has been found for the chemical compounds that comprise this product. However, general comments are made below for the individual elements.
Carcinogenic assessment:	Cobalt - IARC 2B; Nickel - IARC 2B, NTP 2;

Note: IARC 2B - The agent is possibly carcinogenic to humans. This category is generally used for agents for which there is limited evidence in humans in the absence of sufficient evidence in experimental animals. It may also be used when there is inadequate evidence of carcinogenicity in experimental animals. NTP 2 - Substances or groups of substances which may reasonably be anticipated to be carcinogens. "Reasonably anticipated to be carcinogens" defines carcinogens for which there is limited evidence of carcinogenicity in humans and/or sufficient evidence of carcinogenicity in experimental animals.

SECTION 3. HAZARDS IDENTIFICATION (continued)

Tungsten	Industrially this element does not constitute an important health hazard.
Chromium Carbide (as Chromium dust)	Primary hazard - respiratory effects. Chromium metal is relatively non toxic. There is little evidence of significant toxicity from chromic or chromous salts. Exposure to chromium metal does not give rise to pulmonary fibrosis. Unlike nickel, chromium metal does not produce allergic contact dermatitis.
Tantalum Carbide (as Tantalum dust)	Some industrial skin injuries from tantalum have been reported. Systemic industrial poisoning however, is apparently unknown. Tantalum has a low order of toxicity but has produced transient inflammatory lesions in the lungs of animals.
Cobalt	Considered possibly carcinogenic to humans by the IARC. Moderately toxic by ingestion. Inhalation of the dust may cause pulmonary damage. The powder may cause dermatitis.
Titanium Carbide	No information found.
Niobium Carbide	No information found.

SECTION 4. FIRST-AID MEASURES (for dusts, mists and fume)

Eye contact:	If irritation occurs, flush with large amounts of water for at least 15 minutes. If irritation persists, seek medical attention.
Skin contact:	Wash with soap and water. If irritation or rash occurs, thoroughly wash affected area with soap and water and isolate from exposure. If rash persists, seek medical attention.
Inhalation:	If large amounts of dust, from this substance, are inhaled, move the exposed person to fresh air and perform artificial respiration (if necessary). Seek medical attention.
Ingestion:	If ingested, get medical attention. Give large quantities of water and induce vomiting. DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT.
Other:	In the event of wound contamination with nickel, the wound should be promptly and thoroughly cleaned. All contaminated wounds should be thoroughly cleaned.

SECTION 5. FIRE FIGHTING MEASURES

Extinguishing media:	Use Class D fire extinguishing agents (dry powder)
Special procedures:	None associated with the solid product.

Unusual hazard:

Dusts may present a fire or explosion hazard under rare favoring conditions of particle size, dispersion, and strong ignition source. However, this is not expected to be a problem under normal handling conditions.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Clean up any dusts generated using methods which avoid causing dusts to become airborne. Such methods include wet mopping or vacuuming (assuring that the vacuum is equipped with the proper filter to prevent airborne dust levels which exceed the PEL or TLV). If airborne dust is generated and may be present in concentrations exceeding any applicable thresholds, use the appropriate NIOSH approved respiratory protection.

SECTION 7. HANDLING AND STORAGE

Tungsten carbide products are, in general, safe materials to handle and use under almost all commonly encountered environments. Special precautions should be observed in order to minimize the dust created. The generation of dust or mists may present a health hazard if the exposure limits, as described above, are exceeded. Maintain good housekeeping procedures to prevent the accumulation of dust and the generation of airborne dust particles. Avoid dust inhalation and direct skin contact with the dust. Wash hands thoroughly before eating or smoking. Wash exposed skin at the end of the work shift. Periodic medical examinations are recommended for individuals regularly exposed to dust or mists.

SECTION 8. EXPOSURE CONTROL/PERSONAL PROTECTION

Respiratory protection:	Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate PEL or TLV. All requirements set forth in 29CFR1910.134 must be met.
Protective gloves:	Protective gloves or barrier creams are recommended when contact with dust or mist is likely. Wash thoroughly prior to applying barrier creams or using protective gloves.
Ventilation:	Use local exhaust ventilation which is adequate to limit personal exposure to airborne dust to levels which do not exceed the appropriate PEL or TLV. If such equipment is not available, use respiratory protection as specified above.
Eye protection:	Safety glasses with side shields or goggles are recommended.
Other equipment:	Full body protective clothing is advisable if contact with dust, mist or fume is expected. Work clothing should be changed daily if it is suspected that the clothing is contaminated.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Melting pt.:	n/a
Boiling pt.:	n/a
Vapor pressure:	n/a @ 25 °C
Vapor density (air = 1):	n/a
Evaporation rate:	n/a
Solubility in water:	Insoluble

Specific gravity(H ₂ O=1):	5.4 to 15.5
Molecular weight:	n/a
% volatile by vol.:	n/a
Appearance:	Dark gray powder
Odor:	none

SECTION 10. STABILITY AND REACTIVITY

Incompatibilities:	Contact of dust with strong oxidizers may cause fire or explosion. Avoid strong acids. Extremely fine powders may be pyrophoric under some conditions.
Stability:	These metals are stable.
Hazardous decomposition products:	None
Hazardous polymerization:	Will not occur

SECTION 11. TOXICOLOGICAL INFORMATION

Tungsten Carbide does not constitute an important health hazard. Exposure is related chiefly to any dust created. Heavy exposure to the dust or the ingestion of large amounts of the soluble compounds produces changes in body weight, behavior, blood cells, choline esterase activity and sperm in experimental animals. Cobalt is considered possibly carcinogenic to humans by the IARC. Cobalt is moderately toxic by ingestion. Inhalation of cobalt dust may cause pulmonary damage. Exposure to cobalt powder may cause dermatitis. The primary hazard associated with chromium metal dust is related to respiratory effects. Chromium metal is relatively non toxic. There is little evidence of significant toxicity from chromic or chromous salts. Exposure to chromium metal does not give rise to pulmonary fibrosis. Chromium metal does not produce allergic contact dermatitis. Some industrial skin injuries from tantalum have been reported. Systemic industrial poisoning however, is apparently unknown. Tantalum has a low order of toxicity but has produced transient inflammatory lesions in the lungs of animals.

SECTION 12. ECOLOGICAL INFORMATION (not available at this time.)

SECTION 13. DISPOSAL CONSIDERATIONS

This material must be disposed of in accordance with any and all applicable local, state and federal regulations. Material intended for disposal may be sold for scrap for reclaim.

SECTION 14. TRANSPORT INFORMATION

There are no special DOT requirements.

SECTION 15. REGULATORY INFORMATION

The mixture or trade name product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Toxic chemicals in a mixture exceeding the de minimis concentrations listed below must be included in reportable quantity calculations under SARA Title III.

Substance	de minimis concentration
Cobalt	1.0

Copper	11.0
Nickel	0.1
Chromium	0.1

See 40 CFR 372 for reporting requirements

SECTION 16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Teledyne Metalworking Products shall not be held liable for any damage resulting from handling or from contact with the above product. Any comments or questions should be directed to:

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