Member IMC Group

MATERIAL SAFETY DATA SHEET

CEMENTED CARBIDE PRODUCT WITH COBALT/NICKEL BINDER

Issued: 1/1992 Revision: 4/2001

Section 1 - Chemical Product and Company Identification

Material Name	Cemented Carbide Product with Cobalt/Nickel Binder
Chemical Formula	TiC, TiCN ,Mo ,WC, Co, TaC ,Ni, VC, NbC (See also section 2)
CAS No.	See section 2
Other Designations	ISCAR IC-20N IC-30N IC-80T, Refractory Metal Carbide
Manufacturer	Iscar Ltd., Box 11, Tefen 24959 ISRAEL. Tel+972 4 9970311. Fax+972 4 9873741

Section 2 - Composition / Information on Ingredients

Material	CAS No.	% W/W	OSHA PEL (mg/m3)	ACGIH TLV-TWA (mg/m3)
Titanium Carbide	12070-08-5	10-20*	—	—
Titanium Carbo- Nitride	12627-33-7	20-40*	—	—
Molybdenum	7439-98-7	5-15*	10	10
Cobalt	7440-48-4	4-10*	0.1	0.02
Tantalum Carbide	12070-06-3	10-20*	5**	5**
Tungsten Carbide	12070-12-1	65-94*	5**	5**
Nickel	7440-02-0	5-15*	1.5**	1.5**
Niobium Carbide	12069-94-2	1-5*	—	—
Vanadium Carbide	11130-21-5	0-10*	—	—

* Depends on grade specifications
** Values given are "as metal"

Section 3 - Hazards Identification

During normal operation and usage, cemented carbide products do not present ingestion, or other chemical hazards of any kind. However, grinding cemented product will produce dust of potentially hazardous ingredients, which can be swallowed or come in contact with the skin or eyes.

Potential Health Effects

Carcinogenicity: **Cobalt** is classified by ACGIH as animal carcinogen (Group A3) - it is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that are not considered relevant to worker exposure. Available epidemiological studies do not confirm an increased risk of cancer in exposed humans. Available experience suggests that it is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

Nickel (Elemental/Metal) is listed in ACGIH, as "not suspected as a human carcinogen" (Group A5). It is classified by the IARC and NTP as a human carcinogen (Group 1) and an anticipated human carcinogen, respectively.

None of the rest of the components of this material have been identified as known or suspected human carcinogens by NTP, IARC or OSHA.

Summary of Risks: Overexposure to this material in the form of metallurgical powder (from operations such as grinding) is hazardous to health. May cause eye, skin, and mucous membrane irritation. May cause temporary or permanent respiratory disease (HMRD-hard metal related diseases). Permanent respiratory disease can lead to disability or death. Certain pulmonary and skin conditions may be aggravated by exposure.

Medical Conditions Aggravated by Long-Term Exposure: Chronic pulmonary, upper respiratory tract, and skin disorders.
Target Organs: Respiratory system, skin, bladder, kidneys and eyes.
Primary Entry Routes: skin contact, inhalation, ingestion.
Acute Effects:

Eye: Can cause irritation.

Skin: Can cause irritation or an allergic skin rash due to cobalt or nickel sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.

Inhalation: Dust from grinding can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial fibrosis, in a small percentage of exposed individuals. Symptoms include cough, wheezing, soreness of breath, soreness in the chest, and weight loss.
Interstitial fibrosis can lead to permanent disability or death. Certain pulmonary conditions may be aggravated by exposure.

Ingestion: No current scientific studies indicate adverse effects from ingestion of small quantities of dust.

Chronic Effects: Hard metal related diseases (HMRD): Allergic asthma, restricted pulmonary functions, and interstitial fibrosis may be caused by long-terms occupational exposure to cobalt-cemented carbide dust

Section 4 - First Aid Measure

Eyes: If irritation occurs, flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes. If irritation persists, seek medical attention.

Skin: If irritation or rash occurs, remove contaminated clothing and wash affected area with soap and water. If irritation or rash persist, seek medical attention.

Inhalation: Remove the exposed person to fresh air; restore and/or support his or her breathing as needed.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Have **conscious and alert** person drink 2 glasses of water, then induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Section 5 - Fire Fighting Measures

Flash point	N/A	
Autoignition Temperature	N/A	**NFPA 0 : 0 : 0**
LEL	—	
UEL	—	

Extinguishing Media: For powder fires use dry sand, dry dolomite, ABC type fire extinguisher, or flood with water.

Unusual Fire or Explosion Hazards: 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 conditions.

Fire-Fighting Instructions: Move container from fire area if possible. Cool container exposed to flame with water from side until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; else withdraw and let fire burn.

Fire-Fighting equipment: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire, fire fighters should use self-contained breathing apparatus.

Section 6 - Accidental Release Measure

Spill/Leak procedures: Ventilate area of spill. Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed the PEL or TLV), If airborne dust is generated, use an appropriate NIOSH approved respirator.

Section 7 - Handling and Storage

Storage Requirements: Store in a cool, dry, well-ventilated area. Keep away from sparks or ignition source.

Handling Precautions: Maintain good housekeeping procedures to prevent dust accumulation. Avoid dust inhalation and direct skin contact with dust.

Section 8 - Exposure Controls/Personal Protection

Ventilation: Provide local exhaust ventilation or general dilution ventilation to maintain exposure levels below TLV-TWA.

Protective Clothing/Equipment: Wear protective gloves or Barrier cream and protective clothing, to prevent prolonged or repeated skin contact. Wear protective eyeglasses with side shields.

Respirator: Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate PEL or TLV. Follow OSHA respirator regulations (29 CFR 1910.134)

Contaminated Equipment: Soiled clothing should be laundered separately. Dust should be removed by water wash or vacuuming. Do not shake clothing, rags or other items to remove dust.

Comments: Never eat, drink or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State	Solid	**Vapor Pressure (mm Hg)**	N/A
Color	Dark Gray Metal	**Vapor Density (Air = 1)**	N/A
Odor	Odorless	**pH**	N/A
Boiling Point	6000°C	**Specific Gravity (H_2O=1)**	10.73 to 15.11
Melting Point	2870°C	**Percent Volatile by Volume**	0

Water Solubility Insoluble **Evaporation Rate** N/A

Section 10 - Stability and Reactivity

Stability: Stable
Polymerization: Hazardous polymerization cannot occur.
Chemical Incompatibilities: Contact of dust with strong oxidizers may cause fire or explosions.
Conditions to Avoid: Keep away from strong acids.

Section 11 - Toxicological Information

Cobalt: IDLH* Level: 20mg/m^3. LD_{Lo}**, Rat, Oral: 1500 mg/kg. Animal carcinogen, see also Sections 2 & 3 - this MSDS.
Nickel: Dog, intravenous, LD_{Lo}**: 10 mg/kg; Guinea pig, oral, LD_{Lo}**: 5mg/kg. Anticipated human carcinogen, see also Sections 2 &3 - this MSDS.

Tungsten Carbide, Titanium Carbide, Tantalum Carbide, Niobium Carbide, Vanadium Carbide: Toxicity has not been quantified. May cause pulmonary and skin sensitization, and mucous membrane irritation in dust form.

* Immediately dangerous to life and health.
** Lethal Dose Low.

Section 12 - Ecological Information

Ecological testing has not been conducted on this product.

Section 13 - Disposal Consideration

Disposal: Burial at a permitted landfill is recommended. Consider recycling. Follow applicable federal, state, and local regulations.

Section 14 - Transport Information

Sea (IMO / IMDG)	Shipping Name:	Not regulated
Air (ICAO /IATA)	Shipping Name:	Not regulated
European Road/Rail (ADR/RID)	Shipping Name:	Not regulated
U.S Dept. of Transportation	Shipping Name:	Not regulated
Canadian Transportation of Dangerous Goods	Shipping Name:	Not regulated

Section 15 - Regulatory Information

EPA and OSHA Designations: Not listed.

Section 16 - Other Information

This product, to the best of our knowledge, does not contain and is not manufactured with any Class I or Class II Ozone Depleting Chemicals (ODCs).

Disclaimer: This Material Safety Data Sheet and the information it contains is consistent with recommended applications of this product and anticipated non-routine activities involving the product. **It is the user's responsibility** to identify safety hazards. Individuals handling cemented carbide products or powders should be informed of all relevant hazards and recommended safety precautions, and should have access to the information contained in this **MSDS**..

The details contains in this MSDS is believed to be accurate and based on our resent state of knowledge and experience, However, the ISCAR METALWORK COMPANIES (IMC Group)makes no claim regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, injury of any kind which may result from or arise out of the use of or reliance on the information by any person.