

BÖHLER UDDEHOLM

Specialty Metals, Inc.

MATERIAL SAFETY DATA SHEET

Revision Date: 12-05-2001

1. IDENTIFICATION

PRODUCT NAME: Tool Steels, High Speed Steels

SUPPLIER: Böhler Uddeholm Specialty Metals, Inc
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 South Boston, VA 24592
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EMERGENCY: Chemtrec: 800-424-9300

2. INGREDIENTS

No permissible exposure limits (PEL) or threshold limit value (TLV) exist for steels. The following values are applicable to component elements:

Element	Weight Percentage	CAS Number	OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Carbon	0-2.25	1333-86-4	3.50 (As carbon black)	3.50 (As carbon black)
Chromium	0-17.00	7440-47-3	1.00	0.50
Iron	80.00-90.00	1309-37-1	10.00 (As iron oxide fume)	5.00 (As iron oxide fume)
Manganese	0-1.50	7439-96-5	5.00 (Ceiling limit dust)	5.00 (Ceiling limit dust) 1.00 (As fume)
Molybdenum	0-8.00	7439-98-7	5.00 (Soluble compounds)	5.00 (Soluble compounds)
Nickel	0-2.00	7440-02-0	1.00	0.10 (Soluble compounds)
Silicon	0-2.00	7440-21-3	None	5.00 (Respirable dust)
Sulfur	0-0.20	7446-09-5	None	5.00 (As sulfur dioxide)
Tungsten	0-8.00	7440-37-7	None	1.00 (Soluble compounds)
Vanadium	0-10.00	1314-62-1	0.50 (Ceiling limit dust) 0.10 (As fume)	0.05 (As dust and fume)
Cobalt	0-12.00	7440-48-4	0.10 (As dust)	0.05 (As dust)

Some or various combinations of these components may appear in grades produced. Consult appropriate data sheets or test reports for the specific ordered analysis or contact Böhler Uddeholm Specialty Metals, Inc.

NA: NOT APPLICABLE; ND: NOT DETERMINED

3. PHYSICAL DATA

Melting Point:	2400-2850°F
Specific Gravity:	7.5-8.5
Boiling Point:	N/A
Solubility in Water:	Insoluble
Vapor Pressure:	N/A
Appearance and Odor:	Solid, odorless metal. Metallic gray or luster except when material is painted.

4. FIRE AND EXPLOSION DATA

Flash Point:	N/A
Flammability:	Lower Explosive Limit: N/A Upper Explosive Limit: N/A
Extinguishing Media:	N/A
Special Firefighting Procedure:	N/A

5. HEALTH HAZARD DATA

Primary Routes of Exposure

Exposure to specialty steel alloy occurs primarily from inhalation of dust or fumes. However, constituents of these alloys may cause effects directly upon the skin or eyes. Certain constituents may also be harmful if swallowed.

Steel products in the form shipped do not present an inhalation, ingestion or contact hazard. However, operations such as torch cutting, welding and grinding may result in the following effects if exposures exceed the limits listed in Section 2, INGREDIENTS.

Effects of overexposure:

Acute:	Irritation of eyes, nose or throat, metallic taste in mouth, or metal fume fever. Possible dermatitis.
Chronic:	Prolonged over-exposure to alloy dusts or fumes may cause skin, eye, throat or nose irritations, leading to pulmonary diseases. Excessive and repeated inhalation of chromium and nickel fumes or dust may cause severe irritation, ulceration and increased risk of cancer in the respiratory system. Excessive and prolonged inhalation of manganese can cause central nervous system damage resembling a Parkinson-like syndrome.
First Aid:	Inhalation - remove to fresh air and get medical attention. Skin - wash areas well with soap and water. Eyes - flush well with running water to remove particles and get medical attention. Ingestion - in the unlikely event that large quantities of metal have been ingested, get medical attention.

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6. REACTIVITY DATA

Stability – Stable

Conditions to avoid – avoid generation of dust which can present a moderate fire and explosion hazard.

Incompatibility – molten metal will react violently with water.

7. PERSONAL PROTECTION INFORMATION

Use general and local exhaust ventilation to keep airborne concentrations of dusts and fumes below the PEL's and TLV's of Section II. Employees should wear NIOSH or MSHA approved respirators for protection against dust or fumes. Food should not be consumed in the work area.

Full protective clothing should be worn by workers exposed to heavy concentrations of dust. Gloves and barrier creams may be necessary to prevent skin sensitization and dermatitis.

Approved safety glasses with side shields or goggles should be worn during operations creating eye hazards. A welding hood should be worn when welding or burning. Approved steel-toe shoes with metatarsal guards should be worn for foot protection.

8. SPILL OR LEAK PROCEDURES

Action to take for spills – N/A

Waste disposal methods – N/A

9. SPECIAL PRECAUTIONS

Adequate ventilation and/or respiratory protection should be provided if exposure limits in Section 2, INGREDIENTS are exceeded.

Use good housekeeping practices to prevent accumulation of dust and fume and keep airborne dust and fume away.

10. OTHER INFORMATION

All information, recommendations and suggestions contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made by Böhler Uddeholm Specialty Metals, Inc. with respect to the information provided.

Employers should use this information only as a supplement to other available data. Since the use of these steel products is beyond our control, it is each employer's responsibility to assure the safety and health of their employees. Böhler Uddeholm Specialty Metals, Inc. will not assume liability arising out of use of this product by others.

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