

MATERIAL SAFETY DATA SHEET**SECTION I - GENERAL INFORMATION**

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MANUFACTURER'S NAME: Viking Drill & Tool, Inc.

TELEPHONE #: 651-227-8911

ADDRESS (Number, Street, City, State and Zip Code)
355 State St., St. Paul, MN. 55107

DATE: October 16, 2000

PRODUCT TYPE: **HIGH SPEED STEEL DRILL BITS**

GRADE NAME & TYPICAL CHEMISTRY (% Weight)

Grade	C	Si	Mn	Cr	W	Mo	V	Co	Fe
M-1	0.83	0.35	0.30	3.80	1.75	8.50	1.15		Balance
M-2	0.86	0.30	0.30	4.10	6.35	5.00	1.90		Balance
M-7	1.00	0.40	0.30	3.80	1.75	8.50	1.90		Balance
M-42	1.07	0.30	0.30	3.80	1.50	9.50	1.15	8.00	Balance
M-50	0.82	0.45	0.30	4.10		4.20	1.00		Balance

SECTION II - HAZARDOUS INGREDIENTS

Threshold limit values (TLV) for constituent elements

CONSTITUENT ELEMENT	CAS NO.	OSHA PEL (mg/m3)	ACGIH TLV (mg/m3)
Aluminum	Al 7429-90-5		10.00
Boron	B 1303-86-2	15.00	10.00
Carbon	C 1333-86-4	3.50	0.50
Chromium	Cr 7440-47-3	1.00	0.50
Cobalt	Co 7440-48-4	0.10	0.05
Copper	Cu 7440-50-8	0.10	0.20
Iron	Fe 1309-37-1	10.00	5.00
Manganese	Mn 7439-96-5	5.00 *	5.00 *
Molybdenum	Mo 7439-98-7	15.00	10.00
Nickel	Ni 7440-02-0	1.00	1.00
Silicon	Si 7440-21-3	N/A	5.00
Titanium	Ti 134630-67-7	15.00	5.00
Tungsten	W 7440-33-7		5.00
Vanadium	V 1314-62-1	0.50 *	0.05
		0.10 *	0.05

*Ceiling Limits

No threshold limit values (TLV's) exist for specialty or high speed steels. Above TLV's are applicable to the constituent elements.

SECTION III - PHYSICAL DATA

Boiling Point	> 5000° F	Melting Point	Approx 2500° F
Specific Gravity (H ₂ O=1)	Approx. 7.8 - 8.2 @ 60° F	Vapor Pressure	N/A
Vapor Density (Air=1)	N/A	Solubility in H ₂ O	Insoluble
% Volatiles by Volume	N/A	Evaporation (Butyl Acetate=1)	N/A
Appearance and Odor	An odorless metal in various shapes and sizes		

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: NONE

FIRE POINT: NONE

SECTION V - HEALTH HAZARD INFORMATION

WE DO NOT CONSIDER THIS PRODUCT IN THE FORM IT IS SOLD TO CONSTITUTE A PHYSICAL HAZARD OR A HEALTH HAZARD. SUBSEQUENT OPERATIONS SUCH AS GRINDING, MELTING, WELDING, CUTTING OR

PROCESSING IN ANY OTHER FASHION MAY PRODUCE POTENTIALLY HAZARDOUS DUST OR FUMES WHICH CAN BE INHALED, SWALLOWED OR COME IN CONTACT WITH THE SKIN OR EYES.

MSDS - HIGH SPEED STEEL DRILL BITS (continued)

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SECTION V - HEALTH HAZARD INFORMATION (continued)

PRIMARY ROUTES OF ENTRY:	EMERGENCY FIRST AID:
Inhalation	Remove to fresh-air, if condition continues-consult physician.
Eye Contact	Flush well with running water to remove particulate. Get medical attention.
Skin Contact	Brush off excess dust. Wash area with soap and water.
Ingestion	Seek medical help if large quantities of material have been ingested.

SECTION VI - REACTIVITY DATA

STABILITY: Chemically Stable

INCOMPATIBILITY: Reacts with Strong Acids to Generate Hydrogen Gas

HAZARDOUS DECOMPOSITION PRODUCTS: Metallic Oxides

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF RELEASE OR SPILL: N/A

WASTE DISPOSAL METHOD: Solids - Sale as Scrap
Dust, Etc. - Follow Federal, State and local regulations regarding disposal.

SECTION VIII - SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: General - Recommended Local - As Required

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory Protection: If fumes, misting or dust condition occurs and TLV as indicated in Section II is exceeded, provide NIOSH approved respirators.

Eye Protection: Recommended

Gloves: As Required

Other Clothing or Equipment: As Required

SECTION IX - SPECIAL PRECAUTIONS

USE GOOD HOUSEKEEPING PRACTICES TO PREVENT ACCUMULATIONS OF DUST AND USE GOOD VENTILATION PROCEDURES TO KEEP ALL AIRBORNE DUST CONCENTRATIONS TO A MINIMUM.

THIS MATERIAL MAY BE COATED WITH A LIGHT PRESERVATIVE OIL AS A RUST INHIBITOR. IF SO COATED APPROPRIATE PRECAUTIONS ALONG WITH PERSONAL PROTECTIVE EQUIPMENT SHOULD BE ISSUED AS REQUIRED.

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