

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

MANUFACTURER'S NAME: CLEVELAND TWIST DRILL CO.

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CLEVELAND, OHIO 44101

DATE PREPARED: November, 1985

TRADE NAME: (Label Identity): CLEVELAND TWIST DRILL CO. FERROUS CUTTING TOOL PRODUCTS

CHEMICAL NAME: (Generic): Ferrous Alloys

COMMON NAME: High Speed, Tool & Die, Carbon and Stainless Steels

II. HAZARDOUS INGREDIENTS

The terms "hazardous" and "hazardous materials" as used within this MSDS should be interpreted as defined by, and in accordance with, the OSHA Hazard Communication Standard (29 CFR Part 1910, 1200) including cited Appendices, Lists, References, etc., all of which are hereby incorporated by reference.

MATERIAL OR COMPONENT	PERCENT BY WEIGHT	CAS NO.	OSHA PEL (Mg/M ³)	ACGIH TLV (Mg/M ³)
COBALT	0.0 - 12.5%	7440-48-4	0.1	0.1
CHROMIUM	0.0 - 18.0%	7440-47-3	1.0	.50
IRON	60.0 - 99.5%	1309-37-1	10	5
MANGANESE	.10 - 2.5%	7439-96-5	5 (Dust) (Ceiling)	5 (Ceiling)
MOLYBDENUM	0.0 - 10.0%	7439-98-7	15	1
NICKEL	0.0 - 18.0%	7440-02-0	1	10
VANADIUM	0.0 - 8.0%	1314-62-1	.5 (Dust) (Ceiling)	1
TITANIUM	0.0 - 1.0%	13463-67-7	.1 (Fume) (Ceiling)	.05
CARBON	0.10 - 3.00%	1333-86-4	15	.05
TUNGSTEN	0.0 - 18.0%	7440-33-7	3.5	5
SILICON	0.0 - 3.5%	7440-21-2	---	5 (As Carbon Black)
ALUMINUM	0.0 - 2.0%	7429-90	---	5

REFER TO GRADE CHART ATTACHED

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 & ODOR:	Various Shapes, Solid, Odorless Metal		

IV. FIRE AND EXPLOSION DATA

FLASH POINT:	None	FIRE POINT:	None
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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 ABRADING, MELTING, WELDING, CUTTING OR PROCESSING IN ANY OTHER FASHION MAY PRODUCE POTENTIALLY HAZARDOUS DUST OR FUME WHICH CAN BE INHALED, SWALLOWED, OR COME IN CONTACT WITH THE SKIN OR EYES.

PRIMARY ROUTES OF ENTRY: Inhalation

Eye Contact

Skin Contact

Ingestion

EMERGENCY FIRST AID: Remove to fresh air, if condition continues, consult physician.

Flush well with running water to remove particulate. Get medical attention.

Brush off excess dust. Wash area well with soap & water.

Seek medical help if large quantities of material have been ingested.

EFFECTS OF EXPOSURE: No toxic effects would be expected from exposure to the solid form of specialty steel. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, brazing or welding may or may not cause adverse health effects associated the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Subpart Z. (See Section II).

V. HEALTH HAZARD INFORMATION (CONT'D)

EXPOSURE LIMITS: Section II lists specific ingredients and permissible exposure limits.

IMPORTANT: Determine actual exposure by industrial hygiene monitoring.

POSSIBLE SIGNS AND SYMPTOMS OF EXPOSURE TO DUST, WELDING FUME AND GASES:

SHORT TERM EXPOSURE: Metallic taste; nausea, tightness of chest; fever; irritation of eyes, nose, throat and skin; loss of consciousness/death due to welding gases or lack of oxygen.

LONG TERM EXPOSURE: There are no adverse effects from the products in their solid form. Adverse effects may or may not result from long-term (chronic) exposure to dust, fume, gases, etc. that occur by way of subsequent operations on the product. Some studies would associate one (or more) of the constituents (per Section II) with the potential for neurologic, pulmonary, respiratory, skin or other disease. Chromium, cobalt and nickel in various chemical compounds have been identified as suspect human carcinogens by the I.A.R.C., N.T.P. Annual Report. We believe there are no reliable scientific studies which show that workers exposed to operations upon our alloys suffer increased incidence of lung cancer or other disease because of their exposure to the forms of chromium, nickel or other elements in our products.

AGGRAVATION OF PREEXISTING RESPIRATORY OR ALLERGIC CONDITIONS MAY OCCUR IN SOME WORKERS.

VI. REACTIVITY DATA

STABILITY:

Chemically Stable

INCOMPATIBILITY:

Reacts with Strong Acids to Generate Hydrogen Gas

HAZARDOUS DECOMPOSITION PRODUCTS: Metallic Oxides

VII. SPILL OR LEAK PROCEDURES

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

WASTE DISPOSAL METHOD:

Solids - Sale as Scrap for Reuse

Dust, etc. - Follow Federal, State and Local Regulations Regarding Disposal

VIII. SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS:

General - Recommended (To keep airborne concentration of dust and fumes below ACGIH TLV's)

Local - As Required

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory Protection:

If Fumes, misting or dust condition occurs and T.L.V. as indicated in Section II is exceeded, provide NIOSH approved respirators.

Eye Protection:

Recommend approved safety glasses or goggles when working with dusty material.

Gloves:

As Required

Other Clothing or Equipment:

As Required

IX. SPECIAL PRECAUTIONS

USE GOOD HOUSEKEEPING PRACTICES TO PREVENT ACCUMULATIONS OF DUSTS AND TO KEEP AIRBORNE DUST CONCENTRATIONS AT A MINIMUM.

THIS MATERIAL IS POTENTIALLY CONTAMINATED WITH COATINGS SUCH AS OILS FOR PRESERVATIVES AND OTHER CONTAMINANTS. IF THE MATERIAL IS CONTAMINATED, SPECIAL PRECAUTIONS (SUCH AS PROCESS CONTROL AND PERSONAL PROTECTIVE EQUIPMENT APPROPRIATE TO THE NATURE OF THE SUSPECTED CONTAMINANTS SHOULD BE TAKEN TO AVOID RESULTING EXPOSURES WHEN HANDLING, CUTTING (THERMAL OR MECHANICAL) AND/OR HEATING OR MELTING.

While the information set forth on this material safety data sheet is believed to be accurate, as of the effective date, Cleveland Twist Drill Co. makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury of any kind which may result from or arise out of the use or reliance on the information by any person.

N/A = NOT APPLICABLE