

MATERIAL SAFETY DATA SHEET

ISSUE DATE: 05/20/88

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Supersedes: Any Previous M.S.D.S. On This Product.

I. IDENTIFICATION

PRODUCT NAME: CARBON STEEL PRODUCTS
PRODUCT CLASS: Steel

CL WARD & Family, Inc.
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Monongahela, PA 15063

II. HAZARDOUS INGREDIENTS

<u>MATERIAL:</u>	<u>% WEIGHT</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Iron	50.65 - 99.66	10 mg/M3 (oxide fume)	5 mg/M3 (oxide fume)
Carbon	0.01 - 1.5	NA	NA
Chromium*	0.01 - 12	1.0 mg/M3 (metal) 0.5 mg/M3 (soluble)	0.5 mg/M3 (metal) 0.05 mg/M3 (Cr + 6)
Manganese	0.05 - 2.0	5 mg/M3	5 mg/M3 (dust) 1 mg/M3 (fume)
Molybdenum	0.01 - 1.10	15 mg/M3 (insoluble)	10 mg/M3 (insoluble)
Nickel*	0.01 - 10	1.0 mg/M3	1.0 mg/M3
Silicon	0.15 - 2.20	15 mg/M3 (total dust) 5 mg/M3 (resp. dust)	10 mg/M3 (total dust) 5 mg/M3 (resp. dust)
Tungsten	0 - 18	NA	5 mg/M3
Vanadium	0.01 - 1.0	0.5 mg/M3 (dust) 0.1 mg/M3 (fume)	0.05 mg/M3
Zinc	10 (Max)	5.0 mg/M3 (fume)	5.0 mg/M3 (fume)

Trace amounts of copper, lead, phosphorus and sulfur may exist in the steel.

*Suspect Carcinogen by NTP and IARC

III. PHYSICAL DATA

APPEARANCE: Gray-Black with Metallic Luster

SPECIFIC GRAVITY: 7

MELTING POINT: 2750° F

IV. HEALTH HAZARD DATA

ROUTE OF EXPOSURE: Inhalation of dusts or fumes.

EFFECTS OF OVEREXPOSURE:

Acute Effect: Excessive inhalation of metal fumes can produce an acute reaction known as "metal fume fever". Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms) which come on a few hours after large exposures.

Chronic Effects: Only after six to ten years of exposure to iron dust or fume does one present any signs of pneumoconiosis (i.e. siderosis). Physical examinations of those exposed to iron dust have not indicated any disability.

Excessive and repeated inhalation of chromium fume or dust may cause severe irritation, ulceration or cancer in the respiratory system. It is generally believed that the hexavalent forms of chromium (Cr + 6) are responsible for these effects. It is uncertain whether metallic chromium in dust form can cause the same effects noted above.

Excessive and prolonged inhalation of manganese (generally over two years exposure) can cause damage to the central nervous system. The pathology resembles Parkinson Disease. Also, workers routinely exposed to high concentrations of manganese display an unusually high incidence of respiratory disease.

Molybdenum has caused toxicity (anemia and poor growth) in farm animals, but there is no data documenting toxicity to humans due to industrial exposure.

Excessive inhalation of nickel fumes has been associated with respiratory cancer. Nickel is a potential sensitizer and may cause allergic reactions.

Chronic exposure to tungsten dust has caused respiratory disorders characterized by cough, dyspnea and wheezing. There is no

correlation between the onset of symptoms, the lengths of exposure and the development of interstitial fibrosis. Dermatitis, primarily on the side of the neck, flexor parts of the forearm and the back of the hands were also detected. Vanadium dusts cause a persistent cough, which can develop after five hours of exposure and may last up to ten days. Pulmonary irritation also results from vanadium, but there are no deviations in pulmonary function or other laboratory tests. Zinc dust is a skin and respiratory tract irritant. It is relatively nontoxic. However, if oxidation occurs prior to inhalation, one must deal with toxicities associated with zinc oxide such as metal fume fever, gastrointestinal disorders and hepatic dysfunction.

V. EMERGENCY AND FIRST AID

INHALATION: If acute overexposure to dusts or fumes occurs, remove victim from the adverse environment and seek medical attention.

SKIN CONTACT: Wash area of contact thoroughly with soap and water. If irritation persists, seek medical attention.

EYE CONTACT: Flush immediately with running water for fifteen minutes. If irritation persists, seek medical attention.

INGESTION: N/A

VI. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A

EXTINGUISHING MEDIA: Use dry powder for metal fires.

SPECIAL PROCEDURES: Firemen should wear equipment to protect against noxious fumes.

VII. SPILL OR LEAK PROCEDURES

Minimal problems with spills of this product would occur because of its solid form. However, if there is a spill of dust, clean up using methods which avoid dust generation and the use of water, such as vacuum. If airborne dust is generated during the cleanup, use an appropriate NIOSH- approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations.

VIII. SPECIAL PROTECTION

VENTILATION: Local exhaust ventilation should be provided to keep worker exposures within allowable limits.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved organic vapor respirators when vapor concentrations exceed the TLV.

EYE PROTECTION: Personal protective equipment should be worn when there is a reasonable probability of injury.

PROTECTIVE GLOVES: As needed.

IX. CARCINOGENIC ASSESSMENT

Nickel and Chromium have been identified as suspect carcinogens by NTP and IARC.

X. REACTIVITY DATA

STABILITY: Stable under normal conditions of handling and use.

CONDITIONS TO AVOID: Poor ventilation.

INCOMPATIBILITY: Strong acids (produce hydrogen gas).

HAZARDOUS DECOMPOSITION PRODUCT: Metallic oxide.

HAZARDOUS POLYMERIZATION: Will not occur.

XI. SPECIAL PRECAUTIONS

HANDLING AND STORAGE: Use good housekeeping practices to avoid excessive dust accumulation.

This information is taken from sources or based upon data believed to be reliable; however, C.L. WARD & FAMILY, INC. makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.