



TMX is a Division of Thyssen Inc., N.A.
MATERIAL SAFETY DATA SHEET

SECTION I. MATERIAL IDENTIFICATION

COMPANY Thyssen Inc. N.A./TMX Division 400 Renaissance Center, Suite 1800 Detroit, Michigan 48243	RE-ISSUE DATE 1-May-99	IDENTIFICATION NUMBER N/A
TRADE NAME Carbon Steel/Alloy Steel	EMERGENCY PHONE NUMBER (313) 567-5282	PREPARED BY: L. J. Switaj
CHEMICAL NAME Cold Drawn Steel Bars	FORMULA N/A	DOT IDENTIFICATION NO. N/A

SECTION II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS NUMBER	% COMPOSITION BY WEIGHT	OSHA-PEL	OSHA-mg/m3 8-HR. - TWA
BASE METAL				
IRON	7439-89-6	97-99	IRON OXIDE FUME	10
ALLOYING ELEMENTS				
CARBON	7440-44-0	.01-1.10	AS CARBON	15
MANGANESE	7439-96-5	.25-1.65	AS MANGANESE	5
PHOSPHORUS	7723-14-0	.04 MAX.	AS PHOSPHORUS	0.1
SULFUR	7446-09-5	.001-.35	AS SULFUR DIOXIDE	15
SILICON	7440-21-3	.01-0.5	AS SILICON DUST/FUME	5
LEAD	7439-92-1	.15-.35	AS LEAD DUST/FUME	0.05
VANADIUM	7440-6-22	.01-.25	AS VANADIUM PENTOXIDE	15
TELLURIUM	13494-80-9	.50 MAX.	AS TELLURIUM	0.1
NICKEL	7440-02-0	.01-3.75	AS NICKEL	1
CHROMIUM	7440-47-3	.01-2.50	SOLUBLE CHROMIC/SALTS	0.5
MOLYBDENUM	7439-98-7	.01-1.10	SOLUBLE MOLY. COMPOUNDS	15
BISMUTH	7440-69-9	.15 MAX.	AS BISMUTH	15
COPPER	7440-50-8	.50 MAX.	AS COPPER DUST	1
			AS COPPER FUME	0.1
ALUMINUM	7429-90-5	.10 MAX.	AS ALUMINUM	15

PEL=Permissible Exposure Limit (1) % of Alloying Material Varies with Grade of Material.

SECTION III. PHYSICAL DATA

MATERIAL (At Normal Conditions) SOLID	APPEARANCE AND ODOR Metallic Appearance; No Odor
MELTING POINT >2400 Deg. F (1300 Deg. C)	SPECIFIC GRAVITY About 7.8

SECTION IV. FIRE AND EXPLOSIVE

SPECIAL FIRE FIGHTING PROCEDURES Steel Products In Their Solid State Present No Fire Or Explosive Hazard
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SECTION V. REACTIVITY DATA

STABILITY Stable	CONDITIONS TO AVOID Be Aware Of Unsecured Loads
HAZARDOUS DECOMPOSITION PRODUCTS Metallic Dust Or Fumes May Be Produced During Welding, Burning, Grinding And Possibly Machining. Refer To ANSI Z49.1	

SECTION VI. Environmental

SPILL OR LEAK PROCEDURES	N/A
WASTE DISPOSAL METHODS	Disposal must comply with applicable Federal, State and Local disposal and discharge laws.

SECTION VII. HEALTH HAZARD DATA

NOTE: STEEL PRODUCTS IN THEIR NATURAL STATE DO NOT PRESENT AN INHALATION OR CONTACT HAZARD, HOWEVER OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUST WHICH MAY PRESENT HEALTH HAZARDS. THERE IS NO AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH) THRESHOLD LIMIT VALUE (TLV) OR OSHA EXPOSURE LIMIT (PEL) FOR STEEL.

EFFECTS OF OVEREXPOSURE:

Acute - Dust or fume may cause irritation to the eyes, nose, or throat and may leave a metallic taste in the mouth. Inhalation of oxides of Manganese, or Copper may be manifested as flu-like symptoms commonly known as "metal fume fever". Phosphorous dust is considered a nuisance dust.

Chronic - Tantalum dust and fume can be toxic when inhaled.

Aluminum: Inhalation of Aluminum Oxide fume or an accumulation of Silicon in the lungs may result in benign pneumoconiosis.

Bismuth: Chronic ingestion or inhalation may lead to flu-like symptoms and/or damage to the central nervous system, liver, or kidneys.

Chromium: May enter and affect the body through inhalation, ingestion, or skin contact. The National Toxicology Program (NTP) and the Internal Agency for Research on Cancer (IARC) report they possess sufficient evidence to establish a causal relationship for human cancer from Chromium.

Copper: Inhalation may cause nose and throat irritation and prolonged contact may cause dermatitis.

Iron: Inhalation of Iron Oxide fume or dust may result in a condition known as siderosis.

Lead: Lead compounds can be toxic when ingested or inhaled. Lead is a cumulative poison and excessive exposure can have an adverse effect on human reproduction. Acute exposure to lead can be manifested as abdominal pain, nausea, constipation, anorexia, or vomiting, and in severe cases death.

Manganese: Inhalation may result in symptoms such as headache, restlessness, neurological dysfunction, or muscular weakness.

Nickel: Inhalation may result in inflammation of the respiratory tract and fever. The National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) report they possess limited evidence for human cancer from Nickel and Nickel Compounds.

Sulfur: Inhalation of Sulfur Dioxide gas can cause irritation of the respiratory tract, causing bronchial irritation, difficulty in breathing and pulmonary edema.

Molybdenum: Slight irritation of senses. Animal studies suggest digestive disturbances and development of pneumoconiosis, anemia, and gout.

Vanadium: Inhalation of Vanadium oxides may result in metallic taste, throat irritation, cough and/or bronchitis. Contact may cause local irritation.

SECTION VIII. EMERGENCY AND FIRST AID PROCEDURES

Inhalation In the event of excessive exposure to dust or fume, remove the employee to fresh air. If breathing is difficult administer artificial respiration or oxygen. Obtain immediate medical assistance.

Skin: Abrasions and cuts should be washed and closed by a clean compress and be immediately medically treated. Should skin irritation occur, wash affected area with mild soap and rinse with clean warm water.

Eyes: Depending on the type and nature of exposure, relief may be obtained by fresh air or rinsing the eyes with clean water. Obtain medical assistance.

Medical Conditions Aggravated by Exposure:
Persons with a predisposition to respiratory disorders may be adversely affected by particulates or respiratory irritants generated during the mfg. process.

SECTION IX. SPECIAL PROTECTION INFORMATION & CONTROL MEASURES

Note: Consult your regional codes or Code of Federal Regulations, Title 29, Part 1910, Subpart G-Occupational Health and Environmental Control, Subpart I Personal Protective Equipment, Subpart P-Welding, Cutting, and Brazing, and Subpart Z-Toxic and Hazardous Substances. Certain welding type activities may produce hazardous substances such as carbon monoxide, ozone, phosgene in the presence of certain chemicals, or produce inert suffocating atmospheres in addition to the production of ultraviolet radiation and/or noise.

Ventilation: Local exhaust or ventilation systems sufficient to maintain exposure levels to contaminants below prescribed limits may be required. When inhalation controls are not sufficient to reduce the exposure below the applicable exposure limit then use OSHA/NIOSH approved respiratory protection within the use limitations of the respirator.

Personal Protection: To avoid contact use appropriate protective gloves or clothing to protect against cutting edges. Appropriate heat shielding garments should be used for activities using or generating heat. Eyes should be protected by using safetyglasses, goggles, helmet, face shield as appropriate to the operation.

Precautions to be taken in handling and storage:
Be alert to sharp edges and unsecured lifts.

SECTION X. OTHER INFORMATION

SARA Section 313 Toxic Chemical List, de minimis Concentrations

- > 1.0%: Copper, Aluminum, and Manganese
- > 0.1%: Chromium, and Nickel

California Proposition 65

The state of California lists cadmium and cadmium compounds, chromium (hexavalent compounds), and lead as chemicals known to cause cancer and reproductive toxicity. Lead may be present as an intentional additive. Cadmium, cadmium compounds, and lead may be present as impurities of the manufacturing process. Chromium (hexavalent compounds) may be generated during certain manufacturing processes.

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