



ArcelorMittal

Material Safety Data Sheet**Section 1 - Chemical Product and Company Identification****Product/Chemical Name:** Carbon and Alloy Steel Rod or Bar**Reference Number:** AM USA - 007**CAS Number:** Mixture

See Section 16 for product synonyms

Manufacturer: ArcelorMittal USA Inc.
1 South Dearborn Street
Chicago, IL 60603-9888**General Information:** 219-391-3900 or email at: msdssupport@arcelormittal.com**Original Issue Date:** 8/01/04**CHEMTREC (Day or Night): 1-800-424-9300****Revised:** 7/23/09**Section 2 - Composition / Information on Ingredients**

Ingredient Name	CAS Number	Percentage by wt.	OSHA PEL ¹	ACGIH TLV ²
Iron	7439-89-6	95 – 99	10 mg/m ³ - Iron oxide fume	5 mg/m ³ - Iron oxide dust and fume
Bismuth *	7440-69-9	0 – 0.5	15 mg/m ³ - as total dust (PNOR) ³ 5 mg/m ³ - as respirable fraction (PNOR)	10 mg/m ³ - Inhalable fraction ⁴ (PNOS) ⁵ 3 mg/m ³ - as respirable fraction ⁶ (PNOS)
Carbon	7440-44-0	0 – 1.0	15 mg/m ³ - as total dust (PNOR) ³ 5 mg/m ³ - as respirable fraction (PNOR)	10 mg/m ³ - Inhalable fraction ⁴ (PNOS) ⁵ 3 mg/m ³ - as respirable fraction ⁶ (PNOS)
Chromium	7440-47-3	0 – 1.2	1 mg/m ³ - Chromium metal	0.5 mg/m ³ - Chromium metal & Cr III compounds
Copper	7440-50-8	0.005 - 0.5	0.1 mg/m ³ - Fume (as Cu) 1 mg/m ³ - Dusts & mists (as Cu)	0.1 mg/m ³ - Fume 1 mg/m ³ - Dusts & mists (as Cu)
Lead (inorganic) *	7439-92-1	0.001-0.35	0.05mg/m ³	0.05mg/m ³
Manganese	7439-96-5	0 – 2.5	5 mg/m ³ (C) - Fume & Mn compounds	0.2 mg/m ³
Molybdenum	7439-98-7	0 – 1.0	15 mg/m ³ - as total dust 5 mg/m ³ - as respirable fraction	10 mg/m ³ – Insoluble Compounds 5 mg/m ³ – Soluble Compounds
Nickel	7440-02-0	0.004 – 2.1	1 mg/m ³ - Metal & insoluble compounds (as Ni)	1.5 mg/m ³ - Elemental nickel (as Ni) 0.2 mg/m ³ - Insoluble compounds (NOS) ⁷
Selenium	7782-49-2	0- 0.06	0.2 mg/m ³ (as Se)	0.2 mg/m ³ (as Se)
Silicon	7440-21-3	0 – 1.6	15 mg/m ³ - as total dust 5 mg/m ³ - as respirable fraction	10 mg/m ³
Sulfur (SO ₂)	7704-34-9	0 –0.5	13 mg/m ³	5.2 mg/m ³
Tellurium *	13494-80-9	0 – 0.1	0.1 mg/m ³	0.1 mg/m ³
Vanadium (V ₂ O ₅)	7440-62-2	0.001 - 0.5	0.5 mg/m ³ as respirable dust 0.1 mg/m ³ Fume	0.05 mg/m ³

*** Certain products****Notes:**

All commercial steel products contain small amounts of various elements in addition to those listed. These small quantities are frequently referred to as “trace” or “residual” elements that generally originate in the raw materials used. Steel products may contain the following trace or residual elements including typical percentages for the elements identified: Aluminum (typically < 0.1), boron (≤0.005 max, typically 0.001%), calcium (≤ 0.005 max, typically 0.0003%), columbium (≤0.15 max, typically 0.002%), phosphorous (≤0.1 max, typically 0.01%), sulfur (≤ 0.05 max, typically, 0.007%), tin (≤ .03 max.), titanium (≤0.15 max, typically 0.002%). Other trace elements not frequently identified, may include antimony, arsenic, cadmium, cobalt, and zirconium.

- Percentages are expressed as typical ranges or maximum concentrations of trace elements for the purpose of communicating the potential hazards of the finished product. Consult product specifications for specific composition information.
- Product surfaces may be treated with small amounts of corrosion-inhibiting oil that may contain mineral oil or petroleum distillates, or paints, epoxies, laminates, etc., generally applied at the customer’s request. Refer to the coating manufacturer’s MSDS for hazards associated with coatings.

1 OSHA PELs (Permissible Exposure Limits) are 8-hour TWA (time-weighted average) concentrations unless otherwise noted. A “C” designation denotes a ceiling limit, which should not be exceeded during any part of the working exposure unless otherwise noted.

2 Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted.

- 3 PNOR (Particulates Not Otherwise Regulated). All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by a limit which is the same as the inert or nuisance dust limit of 15 mg/m³ for total dust and 5 mg/m³ for the respirable fraction.
- 4 Inhalable fraction. The concentration of inhalable particulate for the application of this TLV is to be determined from the fraction passing a size-selector with the characteristics defined in the ACGIH 2008 TLVs ® and BEIs ® (Biological Exposure Indices) Appendix D, paragraph A.
- 5 PNOS (Particulates Not Otherwise Specified). Particulates identified under the PNOS heading are “nuisance dusts” containing no asbestos and <1% crystalline silica. A TWA-TLV of 10 mg/m³ for inhalable particulate and 3 mg/m³ for respirable particulate has been recommended.
- 6 Respirable fraction. The concentration of respirable dust for the application of this limit is to be determined from the fraction passing a size-selector with the characteristics defined in the ACGIH 2008 TLVs ® and BEIs ® Appendix D, paragraph C.

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

This formed solid metal product poses little or no immediate health or fire hazard. When product is subjected to welding, burning, melting, sawing, brazing, grinding or other similar processes, potentially hazardous airborne particulate and fumes may be generated. These operations should be performed in well-ventilated areas. Avoid inhalation of metal dusts and fumes. Iron or steel foreign bodies imbedded in the cornea of the eye will produce rust stains unless removed promptly. If appropriate, respiratory protection and other personal protective equipment should be used.

Potential Health Effects

Primary Entry Routes: Inhalation and skin, if coated. Steel products in the natural state do not present an inhalation, ingestion or contact hazard. However, operations such as burning, welding, sawing, brazing, machining and grinding may result in the following effects if exposures exceed recommended limits as listed in Section 2.

Target Organs: Respiratory system

Acute Effects:

- **Inhalation:** Excessive exposure to high concentrations of dust may cause irritation to the eyes, skin and mucous membranes of the upper respiratory tract. Excessive inhalation of fumes of freshly formed metal oxide particles sized below 1.5 microns and usually between 0.02-0.05 microns from many metals 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), metallic taste in the mouth, dryness and irritation of the throat followed by weakness and muscle pain. The symptoms come on in a few hours after excessive exposures and usually last from 12 to 48 hours. Long-term effects from metal fume fever have not been noted. Freshly formed oxide fumes of manganese have been associated with causing metal fume fever. Inhalation of chromium compounds may cause upper respiratory tract irritation. Sulfur compounds, present in generated fumes, may irritate the gastrointestinal tract.
- **Eye:** Particles of iron or iron compounds could become imbedded in the eye. Torching or burning operations on steel products with surface treatments, oil coatings, or acrylic films may produce emissions that can be irritating to the eyes. Sulfur compounds, present in generated fumes, may irritate the eyes.
- **Skin:** Skin contact with metallic fumes and dusts may cause physical abrasion. Sulfur compounds, present in generated fumes, may irritate the skin. If applicable, repeated or prolonged contact with chemical surface treatments or oil residue may cause skin irritation, dermatitis, ulceration or allergic reactions in sensitized individuals.
- **Ingestion:** Ingestion of harmful amounts of this product as distributed is unlikely due to its solid insoluble form. Ingestion of dust may cause nausea or vomiting.

Chronic Effects: Chronic inhalation of metallic fumes and dusts are associated with the following conditions:

- **IRON OXIDE:** Chronic inhalation of excessive concentrations of iron oxide fumes or dusts may result in the development of a benign pneumoconiosis, called siderosis, which is observable as an X-ray change. No physical impairment of lung function has been associated with siderosis. Inhalation of excessive concentrations of ferric oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Iron oxide is listed as a Group 3 (not classifiable) carcinogen by IARC (the International Agency for Research on Cancer).
- **BISMUTH:** Bismuth absorption through intact skin is considered negligible with minor absorption through broken skin. Bismuth is poorly absorbed through the intestinal tract but chronic ingestion or inhalation may lead to symptoms manifested as irritation of the mouth; excessive salivation; a foul breath odor; skin lesions; headache; appetite loss; abdominal pain; diarrhea; vomiting; or damage to the nervous system, liver, or kidneys.
- **CARBON:** Chronic inhalation of high concentrations to carbon may cause pulmonary disorders.

- **CHROMIUM:** The health hazards associated with exposure to chromium are dependent upon its oxidation state. The metal form (chromium as it exists in this product) is of very low toxicity. The hexavalent form is very toxic. Repeated or prolonged exposure to hexavalent chromium compounds may cause respiratory irritation, nosebleed, ulceration and perforation of the nasal septum. Industrial exposure to certain forms of hexavalent chromium has been related to an increased incidence of cancer. The National Toxicology Program (NTP) Fourth Annual report on Carcinogens cites "certain Chromium compounds" as human carcinogens. ACGIH has reviewed the toxicity data and concluded that chromium metal is not classifiable as a human carcinogen
- **LEAD:** Lead compounds can be toxic when ingested or inhaled. Lead is a cumulative poison. The predominant effects of excessive exposure are anemia, nervous system disorders, and kidney damage. Nervous system disorders may be displayed as irritability, headaches, insomnia, convulsions, muscular tremors, or palsy of the extremities. Excessive exposure can have adverse effects on human reproduction. IARC concludes that there is inadequate evidence to list lead or lead compounds as a human carcinogen. Acute exposure to lead can be manifested as abdominal pain, nausea, constipation, anorexia, or vomiting; and, in severe cases coma or death.
- **MANGANESE:** Chronic exposure to high concentrations of manganese fumes and dusts may adversely affect the central nervous system with symptoms including languor, sleepiness, weakness, emotional disturbances, spastic gait, mask-like facial expression and paralysis. Animal studies indicate that manganese exposure may increase susceptibility to bacterial and viral infections.
- **MOLYBDENUM:** Certain handling operations, such as burning and welding, may generate both insoluble molybdenum compounds (metal and molybdenum dioxide) and soluble molybdenum compounds (molybdenum trioxide). Molybdenum compounds generally exhibit a low order of toxicity with the trioxide the more toxic. However, some reports indicate that the dust of the molybdenum metal, molybdenum dioxide and molybdenum trioxide may cause eye, skin, nose and throat irritation in animals.
- **NICKEL:** Inhalation may result in inflammation of the respiratory tract that may be accompanied by fever. Nickel compounds are known sensitizers. The National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) report they possess limited evidence for human cancer for nickel and certain nickel compounds.
- **SELENIUM:** Selenium itself is relatively no-reactive. Some compounds may cause skin irritation, blisters or rash. Exposure is usually through inhalation, although ingestion and skin absorption are routes of entry for some selenium compounds. Possible metallic taste in the mouth, metal fume fever, garlic odor breath, or indigestion is possible. Potential liver or kidney damage from high exposure.
- **SILICON:** Silicon dusts are a low health risk by inhalation and should be treated as a nuisance dust. Eye contact with pure material can cause particulate irritation. Skin contact with silicon dusts may cause physical abrasion.
- **SULFUR (sulfur dioxide):** Inhalation of sulfur dioxide gas can cause nose and throat irritation resulting in sneezing or coughing with possible lacrimation. Sulfur dioxide affects the respiratory tract, causing bronchial irritation, difficulty in breathing, and pulmonary edema.
- **TELLURIUM:** Inhalation of tellurium has reportedly resulted in loss of appetite, nausea, dryness of the mouth and metallic taste, and garlic odor of the breath and sweat.
- **VANADIUM:** Inhalation of vanadium oxides may result in metallic taste, throat irritation, cough and/or bronchitis. Contact may cause local irritation.

Long-term inhalation exposure to high concentrations (over-exposure) to pneumoconiotic agents may act synergistically with inhalation of oxides, fumes or dusts of this product to cause toxic effects.

- **Carcinogenicity:** IARC, NTP, and OSHA do not list steel products as carcinogens. IARC identifies nickel and certain nickel compounds and welding fumes as Group 2B carcinogens that are possibly carcinogenic to humans. ACGIH lists insoluble nickel compounds as confirmed human carcinogens. IARC lists chromium metal and trivalent chromium compounds as Group 3 carcinogens, not classifiable as to their human carcinogenicity. Hexavalent chromium compounds are listed by IARC as Group 1 carcinogens that are carcinogenic to humans. NTP Fourth Annual report on Carcinogens cites "certain Chromium compounds" as human carcinogens. ACGIH has reviewed the toxicity data and concluded that chromium metal is not classifiable as a human carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: Individuals with chronic respiratory disorders (i.e., asthma, chronic bronchitis, emphysema, etc.) may be adversely affected by any fume or airborne particulate matter exposure.

SARA Potential Hazard Categories: Immediate Acute Health Hazard, Delayed Chronic Health Hazard.

Section 4 – First Aid Measures

Inhalation: For over-exposure to airborne fumes and particulate, remove exposed person to fresh air. If breathing is difficult or has stopped, administer artificial respiration or oxygen as indicated. Seek medical attention promptly.

Eye Contact: Flush with large amounts of clean water to remove particles. Seek medical attention if irritation persists.

Skin Contact: Remove contaminated clothing. Wash affected areas with soap or mild detergent and water. If thermal burn has occurred, flush area with cold water and seek medical attention. If mechanical abrasion has occurred, seek medical attention.

Ingestion: Not a probable route of industrial exposure. However, if ingested, obtain medical advice.

Section 5 - Fire-Fighting Measures

Flash Point: Not Applicable

LEL: Not Applicable

Flash Point Method: Not Applicable

UEL: Not Applicable

Burning Rate: Not Applicable

Auto-ignition Temperature: Not Applicable

Flammability Classification: Non-Flammable, Non-Combustible.

Extinguishing Media: Not applicable for solid product. Use extinguishers appropriate for surrounding materials.

Unusual Fire or Explosion Hazards: High concentrations of airborne metallic fines may present an explosion hazard. Not applicable for solid product.

Hazardous Combustion Products: At temperatures above the melting point, fumes containing metal oxides and other alloying elements may be liberated. If present, surface treatments such as corrosion-inhibiting oils, resin, or coatings on the product may yield noxious gases such as the oxides of carbon.

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode and full protective clothing.

Section 6 – Accidental Release Measures

Spill/Leak Procedures: Not applicable to metal in solid state. For spills involving finely divided particles, personnel should be protected against contact with eyes and skin. If material is in a dry state, avoid inhalation of dust. Fine, dry material should be removed by vacuuming or wet sweeping methods to prevent spreading of dust. Avoid using compressed air. Do not release into sewers or waterways. Collect material in appropriate, labeled containers for recovery or disposal in accordance with Federal, state, and local regulations.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120) and all other pertinent state and Federal requirements.

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Section 7 – Handling and Storage

Handling Precautions: Use lifting and work devices, e.g., crane, hoist, etc., within rated capacities and in accordance with manufacturer's instructions when handling these products. Operations with the potential for generating high concentrations of airborne particles should be evaluated and controlled as needed. Minimize generation of airborne dust and fume. Avoid breathing metal dust or fumes. Practice good housekeeping.

Storage Requirements: Store away from acids and incompatible materials.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use controls as appropriate to minimize exposure to metal fumes and dusts during handling operations.

Ventilation: Provide general or local exhaust ventilation systems to minimize airborne concentrations. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: Do not use compressed air to clean-up accumulated material or dust. Minimize generation of airborne emissions.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen.

Protective Clothing/Equipment: For operations which result in elevating the temperature of the product to or above its melting point or result in the generation of airborne particulates, use protective clothing, gloves and safety glasses to prevent skin and eye contact. Contact lenses should not be worn where industrial exposures to this material are likely. Use safety glasses or goggles as required for welding, burning, sawing, brazing, grinding or machining operations. Protective gloves should be worn as required for welding, burning or handling operations. Where oil coating is applied to the product, wear gloves when handling, do not continue to use gloves or work clothing that has become saturated or soaked through with oil coating. Wash skin that has been exposed to oil with soap and water or waterless hand cleaner.

Section 9 - Physical and Chemical Properties

Physical State: Solid	Water Solubility: Insoluble
Appearance and Odor: Metallic Gray, Odorless	Other Solubilities: Not Applicable
Odor Threshold: Not Applicable	Boiling Point: Not Applicable
Vapor Pressure: Not Applicable	Viscosity: Not Applicable
Vapor Density (Air = 1): Not Applicable	Refractive Index: Not Applicable
Formula Weight: Not Applicable	Surface Tension: Not Applicable
Density: 7.85	% Volatile: Not Applicable
Specific Gravity (H₂O = 1, at 4 °C): 7.85	Evaporation Rate: Not Applicable
pH: Not Applicable	Freezing/Melting Point: 1510 °C, (2750 °F)

Section 10 - Stability and Reactivity

Stability: Steel products are stable under normal storage and handling conditions.

Polymerization: Hazardous polymerization will not occur.

Chemical Incompatibilities: Will react with strong acids to form hydrogen. Iron oxide dusts in contact with calcium hypochlorite evolve oxygen and may cause an explosion.

Conditions to Avoid: Avoid storage with strong acids or calcium hypochlorite.

Hazardous Decomposition Products: Thermal oxidative decomposition of steel products can produce fumes containing oxides of iron, manganese as well as other elements. If present, surface treatments such as corrosion-inhibiting oils, resin, or coatings on the product may yield noxious gases such as the oxides of carbon upon thermal oxidative decomposition.

Section 11- Toxicological Information

Toxicity Data:* No information is available for the product as a mixture. The possible presence of chemical surface treatments and oil coatings should be considered when evaluating potential employee health hazards and exposures during handling and welding or other fume generating activities.

Eye Effects:

Eye contact with the individual components may cause particulate irritation. Implantation of iron particles in guinea pig corneas have resulted in rust rings with corneal softening about rust ring.

Skin Effects:

Not anticipated to pose significant skin hazards. Skin contact with the individual components may cause physical abrasion, irritation, dermatitis, ulcerations and sensitizations.

Chronic Effects: Refer to Section 3

Acute Inhalation Effects:

Inhalation of the individual alloy components has been shown to cause various respiratory effects.

Acute Oral Effects:

No Information Found (NIF)

Other: No LC50 or LD50 has been established for the mixture as a whole.

Iron LD50: 30 g/kg oral (rat), Bismuth: NIF, Carbon LD50: NIF, Chromium LD_{Lo}: 71 mg/kg GIT oral (human), Copper LD_{Lo}: 120 µg/kg GIT intrapleural (rat), Lead LD_{Lo}: 155 mg/kg oral (human), Manganese LD50: 9 g/kg oral (rat), Molybdenum LD_{Lo}: 114 mg/kg intraperitoneal (rat), Nickel LD_{Lo}: 5 mg/kg oral (guinea pig), Selenium LD50: 6,700 mg/kg oral (rat), Silicon LD50: NIF, Sulfur LD50: NIF, Tellurium LD50: 83 mg/kg oral (rat), Vanadium LD50: 59 mg/kg subcutaneous (rabbit).

Carcinogenicity: Chromium and Nickel, Refer to Section 3

Mutagenicity: NIF

Teratogenicity: NIF

* See NIOSH, RTECS (NO7400000), for additional toxicity data on iron oxide,(EB2600000) for bismuth, (FF5250000) for carbon, (GB5425000) for chromium, (GL5325000) for copper, (OF7525000) for lead, (OO9275000) for manganese, (QA4680000) for molybdenum, (QR5950000) for nickel, (VS7700000) for selenium, (WM0400000) for silicon, (WS4250000) for sulfur, (WY2625000) for tellurium, (YW2460000) for vanadium pentoxide.

Section 12 - Ecological Information

Ecotoxicity: No data available for the product as a whole. However, individual components of the product have been found to be toxic to the environment. Metal dusts may migrate into soil and groundwater and be ingested by wildlife.

Environmental Fate: No Information Found (NIF)

Environmental Degradation: NIF

Soil Absorption/Mobility: No data available for the product as a whole. However, individual components of the product have been found to be absorbed by plants from soil.

Section 13 - Disposal Considerations

Disposal: This material is considered to be a solid waste, not a hazardous waste. Follow applicable Federal, state, and local regulations for disposal of solid waste and airborne particulates accumulated during handling operations of the product. Waste steel products can be recycled for further use.

Disposal Regulatory Requirements: None

Container Cleaning and Disposal: Follow applicable Federal, state and local regulations. Observe safe handling precautions.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Steel products are not listed as hazardous substances under 49 CFR 172.101.

Shipping Name: Not Applicable

Shipping Symbols: Not Applicable

Hazard Class: Not Applicable

ID No.: Not Applicable

Packing Group: Not Applicable

Label: Not Applicable

Special Provisions (172.102): None

Packaging Authorizations

a) **Exceptions:** None

b) **Non-bulk Packaging:** Not Applicable

c) **Bulk Packaging:** Not Applicable

Quantity Limitations

a) **Passenger, Aircraft, or Railcar:** Not Applicable

b) **Cargo Aircraft Only:** Not Applicable

Vessel Stowage Requirements

a) **Vessel Stowage:** Not Applicable

b) **Other:** Not Applicable

Section 15 – Regulatory Information

This product and/or its constituents are subject to the following regulations:

Regulatory Information: The following listing of regulations relating to an ArcelorMittal USA Inc.. product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.

This product and/or its constituents are subject to the following regulations:

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Steel products as a whole are not listed. However, individual components of the product are listed.

EPA Regulations:

RCRA: Chromium and Nickel are regulated under this act.

CERCLA Hazardous Substance (40 CFR 302.4): The product as a whole is not listed. However, individual components of the product are listed: Chromium, Copper, Lead, Manganese compounds and Nickel are listed under SARA 302.

SARA 311/312 Codes: Immediate (acute) health hazard and delayed (chronic) health hazard.

SARA 313: Chromium, Copper, Lead, Manganese, and Nickel are subject to SARA 313 reporting requirements. Please also note that if you prepackage or otherwise redistribute this product to industrial customers, SARA 313 requires that a notice be sent to those customers.

Clean Water Act: Chromium, Copper, Lead and Nickel are Section 307 Priority Pollutants.

Safe Drinking Water Act: Chromium, Copper, Lead, Molybdenum, Nickel and Vanadium are regulated under this act.

State Regulations: The product as a whole is not listed in any state regulations. However, individual components of the product are listed in various state regulations.

Pennsylvania Right to Know: Contains regulated material in the following categories:

- Hazardous Substances: Lead, Molybdenum, Silicon, and Sulfur
- Environmental Hazards: Chromium, Copper, Lead, Manganese, Nickel, and Vanadium.
- Special Hazard Substances: Chromium and Nickel

New Jersey Right to Know: Contains regulated material in the following categories:

- Environmental Hazardous Substance: Aluminum (fume or dust), Chromium, Copper, Manganese, Nickel, Phosphorous and Vanadium (fume or dust)
- Special Health Hazard Substances: Not regulated.

California Prop. 65: Nickel is a material known to cause cancer or reproductive toxicity. Lead is a material known to the State of California to cause reproductive toxicity.

Other Regulations: The product as a whole is not listed in any state regulations. However, individual components of the product are listed in various state regulations.

WHMIS (Canadian): D2B Product Classification.

Section 16 – Other Information

Prepared By: ArcelorMittal USA Inc.

Hazard Rating Systems: NFPA Code: 0-0-0 HMIS Code: 0-0-0 PPE: See Section 8

ABBREVIATIONS/ACRONYMS:

ACGIH	- American Conference of Governmental Industrial Hygienists
BEIs	-Biological Exposure Indices
CAS	- Chemical Abstracts Service
CERCLA	-Comprehensive Environmental Response, Compensation, and Liability Act
CFR	- Code of Federal Regulations
CNS	-Central Nervous System
GI, GIT	- Gastro-Intestinal, Gastro-Intestinal Tract
HMIS	- Hazardous Materials Identification System
IARC	- International Agency for Research on Cancer
LC50	-Median Lethal Concentration
LD50	-Median Lethal Dose
LD_{Lo}	- Lowest Dose to have killed animals or humans
LEL	-Lower Explosive Limit
µg/m³	- microgram per cubic meter of air
mg/m³	- milligram per cubic meter of air
mppcf	- million particles per cubic foot
MSDS	- Material Safety Data Sheet
MSHA	- Mine Safety and Health Administration

NFPA	- National Fire Protection Association
NIF	- No Information Found
NIOSH	- National Institute for Occupational Safety and Health
NTP	- National Toxicology Program
ORC	- Organization Resources Counselors
OSHA	- Occupational Safety and Health Administration
PEL	- Permissible Exposure Limit
PNOR	- Particulate Not Otherwise Regulated
PNOC	- Particulate Not Otherwise Classified
PPE	- Personal Protective Equipment
ppm	- parts per million
RTECS	- Registry of Toxic Effects of Chemical Substances
SARA	-Superfund Amendments and Reauthorization Act
SCBA	- Self-contained Breathing Apparatus
STEL	- Short-term Exposure Limit
TLV	- Threshold Limit Value
TWA	- Time-weighted Average
UEL	- Upper Explosive Limit

Disclaimer: This information is taken from sources or based upon data believed to be reliable. Our objective in sending this information is to help you protect the health and safety of your personnel and to comply with the OSHA Hazard Communication Standard and Title III of the Superfund Amendment and Reauthorization Act of 1986. ArcelorMittal USA Inc. makes no warranty as to the absolute correctness, completeness, or sufficiency of any of the foregoing, or any additional, or other measures that may not be required under particular conditions. ARCELORMITTAL USA INC. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING OR TRADE.

Synonyms for Carbon Steel Rod or Bar

Inland DURA SPRING™	Inland DURAGRIND
Inland FREE FORM™	Inland INcut™ (100 &200)
Inland INX	Inland LEDLOY™
Inland LEDLOY™ A	Inland LEDLOY™ AX
Nonresulfurized Carbon Steel	Nonresulfurized Carbon Steel: Copper Bearing
Nonresulfurized Carbon Steel: Vanadium Bearing	Nonresulfurized Carbon Steel: Vanadium, Titanium, and Boron
Nonresulfurized Carbon Steel: Boron Bearing	Nonresulfurized Carbon Steel: Lead Bearing
Nonresulfurized Carbon Steel: Titanium Bearing	Nonresulfurized Carbon Steel: Bismuth Bearing
Nonresulfurized Carbon Steel: Tellurium Bearing	Resulphurized Carbon Steel
Resulphurized Carbon Steel: Bismuth Bearing	Resulphurized Carbon Steel: Tellurium Bearing
Resulphurized Carbon Steel: Vanadium Bearing	Resulphurized Carbon Steel: Lead Bearing
Resulphurized Carbon Steel: Lead & Tellurium Bearing	Rephosphurized and Resulfurized Carbon Steel
Standard Alloy Steel: Boron Treated	Standard Alloy Steel: Chromium Treated
Standard Alloy Steel: Manganese	Standard Alloy Steel: Molybdenum Bearing
Standard Alloy Steel: Molybdenum Bearing and Chromium	Standard Alloy Steel: Molybdenum, Chromium and Lead
Standard Alloy Steel: Molybdenum, Chromium and Nickel	Standard Alloy Steel: Molybdenum, Chromium, Nickel, Lead
Standard Alloy Steel: Molybdenum and Nickel	Standard Alloy Steel: Silicon and Chromium
Standard Alloy Steel: Vanadium, Titanium and Boron	Standard Alloy Steel: Selenium bearing
Inland DURA SPRING™	Inland DURAGRIND
Inland INX	Inland INcut™ (100 &200)
Inland LEDLOY™	Inland LEDLOY™ A
Inland LEDLOY™ AX	