

SAFETY DATA SHEET

1. Identification

Product identifier Stainless
Steel Other means of identification
SDS number 11459C
Recommended use Manufacture steel articles.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name Metallus Inc.
Address 1835 Dueber Avenue SW

Canton, OH 44706 US

US

Telephone (330) 471-3360
E-mail Not available.
Contact person Metallus Inc. Security Department
Emergency phone number (330) 471-3360

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Sensitization, respiratory Category 1
Sensitization, skin Category 1
Carcinogenicity Category 2

OSHA defined hazards Not classified.

Signal word Warning

Hazard statement May cause an allergic skin reaction. Suspected of causing cancer.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

Response If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. Take off contaminated clothing and wash it before reuse.

Storage Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Label elements



3.

Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
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Chromium	7440-47-3	<14
Molybdenum	7439-98-7	<1.5
Silicon	7440-21-3	<1.1
Manganese	7439-96-5	<1
Nickel	7440-02-0	<.6
Iron	7439-89-6	Balance

Percentages vary depending on the grade of steel. The

Chromium contained in this product is in metallic form.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Dermatitis. Rash. May cause an allergic skin reaction.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂). Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from chemical	During fire, gases hazardous to health may be formed. the
Special protective equipment precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. and
Firefighting	Move containers from fire area if you can do so without risk. equipment/instructions
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. General fire
hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from upwind spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Stop the flow of material if this is without risk. Prevent entry into waterways, sewers, basements or confined areas. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	PEL	1 mg/m3	Fume.
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m3	Total dust.
Molybdenum (CAS 7439-98-7)	PEL	15 mg/m3	
Nickel (CAS 7440-02-0)	PEL	1 mg/m3	Respirable fraction.
Silicon (CAS 7440-21-3)	PEL	5 mg/m3 15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m3	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Manganese (CAS 7439-96-5)	STEL	3 mg/m3	Fume.
Nickel (CAS 7440-02-0)	TWA	1 mg/m3	Fume.
Silicon (CAS 7440-21-3)	TWA	0.015 mg/m3 TWA 5 mg/m3 10 mg/m3	Respirable. Total

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation,

or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. **Individual protection measures, such as personal protective equipment**

Eye/face protection If contact is likely, safety glasses with side shields are recommended.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection Wear positive pressure self-contained breathing apparatus (SCBA).

Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid.
Color	Silver to gray.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	2795 °F (1535 °C)
Initial boiling point and boiling range	5432 °F (3000 °C)
Flash point	Not available.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available. Upper/lower

flammability or explosive limits

Flammability limit - lower (%)	Not available.	Decomposition temperature	Not available.
Flammability limit - upper (%)	Not available.	Viscosity	Not available.
Explosive limit - lower (%)	Not available.	10. Stability and reactivity	
Explosive limit - upper (%)	Not available.	Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Vapor pressure	Not available.	Chemical stability	Material is stable under normal conditions.
Vapor density	Not available.	Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Relative density Solubility(ies)	~7.9	Conditions to avoid	Contact with incompatible materials.
Solubility (water)	Not available.	Incompatible materials	Strong oxidizing agents.
Partition coefficient (n-octanol/water)	Not available.	Hazardous decomposition products	No hazardous decomposition products are known.
Auto-ignition temperature	Not available.	11. Toxicological information	

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	May cause an allergic skin reaction.
Eye contact	Direct contact with the eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical, and toxicological characteristics Dermatitis. Rash. May cause an allergic skin reaction.

Information on toxicological effects

Acute toxicity	Not classified.	LD50	Rat
Components	Species	S	
Manganese (CAS 7439-96-5)			i
Acute			l
Oral			i
			c
			o
			n

(CAS 7440-21-3)

Acute

Inhalation

LC50 Rat 9000 mg/kg

Oral

LD50 Rat > 2.08 mg/l, 4 hours

Test Results

3160 mg/kg

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye Direct contact with eyes may cause temporary irritation. **irritation**

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3) 3 Not classifiable as to carcinogenicity to humans. Nickel (CAS 7440-02-0) 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Nickel (CAS 7440-02-0) Known To Be Human Carcinogen.
Reasonably Anticipated to be a Human Carcinogen. **OSHA**

Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects. **Specific target**

organ toxicity - Not classified.

single exposure

Specific target organ toxicity - Not classified.
repeated exposure

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components

Iron (CAS 7439-89-6)

Species

Test Results

Aquatic

Fish

LC50 Channel catfish (*Ictalurus punctatus*) > 500 mg/l, 96 Hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List. **TSCA**

Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Chromium (CAS 7440-47-3)	LISTED	Manganese (CAS 7439-96-5)	LISTED
Nickel (CAS 7440-02-0)	LISTED		

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard	- Yes
Delayed Hazard	- Yes
Fire Hazard	- No
Pressure Hazard	- No
Reactivity Hazard	- No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Chromium		<14
Manganese	7440-47-3	<1
Nickel	7439-96-5	<.6
	7440-02-0	

Other federal regulations

Stainless Steel

SDS US

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

- Chromium (CAS 7440-47-3)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130) Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

- Chromium (CAS 7440-47-3)
- Manganese (CAS 7439-96-5)
- Molybdenum (CAS 7439-98-7)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)

US. New Jersey Worker and Community Right-to-Know Act

- Chromium (CAS 7440-47-3)
- Manganese (CAS 7439-96-5)
- Molybdenum (CAS 7439-98-7)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)

US. Pennsylvania Worker and Community Right-to-Know Law

- Chromium (CAS 7440-47-3)
- Manganese (CAS 7439-96-5)
- Molybdenum (CAS 7439-98-7)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)

US. Rhode Island RTK

- Chromium (CAS 7440-47-3)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)

US. California Proposition 65



WARNING: This product can expose you to chemicals including Chromium (Hexavalent) and Nickel which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	09-April-2015
Revision date	-
Version #	01
Further information	NFPA Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
NFPA ratings	



Disclaimer

Metallus Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage, and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The

information in the sheet was written based on the best knowledge and experience currently available.