

SAFETY DATA SHEET

1. Identification

Product identifier	Carbon Steel
Other means of identification	
SDS number	11459A
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

Chemical name	CAS number	%
Carbon	7440-44-0	<2
Manganese	7439-96-5	<2

Nickel

7440-02-0

<1

4. First-aid measures

Inhalation

Skin contact

Move to fresh air. Call a physician if symptoms develop or persist.

Eye 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.

Ingestion

Rinse with water. Get medical attention if irritation develops and persists.

Most important symptoms/effects, acute and delayed

Rinse mouth. Get medical attention if symptoms occur. Dermatitis.

Rash. May cause an allergic skin reaction.

Indication of immediate medical attention and special treatment needed General information

Provide general supportive measures and treat symptomatically. Keep the victim under observation. Symptoms may be delayed.

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 (CO₂). **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 equipment/instructions Move containers from fire area if you can do so without risk.

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 and upwind of 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, sewer, 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

U.S. - OSHA

Components	Type TWA	Value
Carbon (CAS 7440-44-0)		15 mppcf

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	
Nickel (CAS 7440-02-0)	PEL	1 mg/m3	

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	2 mg/m3	Respirable fraction.
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
Carbon (CAS 7440-44-0)	TWA	2.5 mg/m3	Respirable.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Manganese (CAS 7439-96-5)	STEL	3 mg/m3	Fume.
	TWA	1 mg/m3	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m3	

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 In case of insufficient ventilation, wear suitable respiratory equipment.

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.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density Solubility(ies) ~7.9

Solubility (water) Not available.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature Not available.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage, and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products No hazardous decomposition products are known.

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.

Oral
LD50 Rat

Information on toxicological effects

Acute toxicity Not classified.

Test Results

Components

Species

Carbon (CAS 7440-44-0)

Acute

Inhalation

LC50

Rat

> 2000 mg/m3, 4 hours

Manganese (CAS 7439-96-5)

Acute

9000 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 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 - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
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.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential in soil	No data available. Mobility
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
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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.
Manganese		<2
Nickel	7439-96-5	<1
	7440-02-0	

Other federal regulations

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)
Nickel (CAS 7440-02-0)

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

Carbon (CAS 7440-44-0)
Chromium (CAS 7440-47-3)
Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)

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

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

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) which is 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 on the sheet was written based on the best knowledge and experience currently available.