

1. Identification

Product identifier Cold Rolled Galvanized
Other means of identification None.
Recommended use Steel Fabricated Parts.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name Steel Dynamics, Columbus Division
Address 1945 Airport Road
 Columbus MS, 39701
 US
Telephone 662-245-4200
E-mail Not available.
Contact person Chem Tel (24 Hr. Emergency)
Emergency phone number 800-255-3924

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Not classified.
OSHA defined hazards Not classified.

Label elements

Hazard symbol None.
Signal word None.
Hazard statement None.
Precautionary statement
Prevention Avoid creating dust.
Response Wash skin with soap and water.
Storage Store away from incompatible materials.
Disposal Dispose of waste and residues in accordance with local authority requirements.

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

Supplemental information

In its manufactured and shipped state, this product is considered non-hazardous. Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Iron	7439-89-6	90-100
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Silicon	7440-21-3	0-1
Nickel	7440-02-0	0-0.4
Vanadium	7440-62-2	0-0.2
Iron oxide**	1309-37-1	0

Vanadium pentoxide**	1314-62-1	0
Zinc oxide**	1314-13-2	0

The product is an alloy. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. The surface is galvanized with zinc. The surface may be passivated with chromic acid leaving residual coating of chrome III and VI compounds. The product may be coated with acrylic coating. The steel is treated with mineral oil.

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
**Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide fumes may be formed during burning, cutting, or welding.

4. First-aid measures

Inhalation In case of inhalation of fumes from heated product: Move into fresh air and keep at rest. Get medical attention if symptoms persist. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration.

Skin contact Wash skin with soap and water. In case of burns with hot metal, rinse with plenty of cold water. If burns are severe, consult a physician. If skin irritation or an allergic skin reaction develops, get medical attention.

Eye contact Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.

Ingestion Solid steel: Not applicable. Dust: Get medical attention if any discomfort continues.

Most important symptoms/effects, acute and delayed High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills.

5. Fire-fighting measures

Suitable extinguishing media No unusual fire or explosion hazards noted. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical At temperatures above the melting point, may liberate fumes of iron, nickel, and zinc oxide.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Cold solid metal: No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product. Hot metal: Avoid contact with hot material. Wear protective clothing as described in Section 8 of this safety data sheet.

Methods and materials for containment and cleaning up In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.
Collect for recycling.

Environmental precautions No specific precautions.

7. Handling and storage

Precautions for safe handling Oil coating can make material slippery. Avoid contact with sharp edges and hot surfaces. Use appropriate gloves and tools to ensure safe handling. Use work methods which minimize dust/fume production. Do not breathe fumes and dusts. Observe safety measures suited to the coating(s) when handling, cutting or melting. Follow the recommendations in ANSI Z49.1, Safety in welding and cutting (ANSI=American National Standard Institute). Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store in a dry place. Store away from: Oxidizing agents. Acids.

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/m ³	
Iron oxide** (CAS 1309-37-1)	PEL	10 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	PEL	1 mg/m ³	
Silicon (CAS 7440-21-3)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.5 mg/m ³	Respirable dust.
		0.1 mg/m ³	Fume.
Zinc oxide** (CAS 1314-13-2)	PEL	5 mg/m ³	Respirable fraction.
		5 mg/m ³	Fume.
		15 mg/m ³	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Respirable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.
Vanadium pentoxide** (CAS 1314-62-1)	TWA	0.05 mg/m ³	Inhalable fraction.
Zinc oxide** (CAS 1314-13-2)	STEL	10 mg/m ³	Respirable fraction.
	TWA	2 mg/m ³	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Dust and fume.
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	Fume.
	TWA	1 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total
Vanadium (CAS 7440-62-2)	STEL	3 mg/m ³	
	TWA	1 mg/m ³	
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.05 mg/m ³	Fume.
		0.05 mg/m ³	Dust.
Zinc oxide** (CAS 1314-13-2)	Ceiling	15 mg/m ³	Dust.
	STEL	10 mg/m ³	Fume.
	TWA	5 mg/m ³	Fume.
		5 mg/m ³	Dust.

Biological limit values

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

Exposure guidelines

**Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide fumes may be formed during burning, cutting, or welding.

Appropriate engineering controls

Adequate ventilation should be provided so that exposure limits are not exceeded. Use local exhaust when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure.

Individual protection measures, such as personal protective equipment

Eye/face protection	Use of safety glasses or goggles is required for welding, burning, sawing, brazing, grinding or machining operations. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.
Skin protection	
Hand protection	Wear protective gloves.
Other	Wear suitable protective clothing.
Respiratory protection	Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
Thermal hazards	When material is heated, wear gloves to protect against thermal burns. Thermally protective apron and long sleeves are recommended when volume of hot material is significant.
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. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Rolled steel.
Color	Metallic gray.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	2750 °F (1510 °C) / Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not applicable.
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.

10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	This product is stable under expected conditions of use.
Possibility of hazardous reactions	Will not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids. Oxidizing agents.

Hazardous decomposition products At elevated temperatures: Acrid fumes. Metallic fumes.
Strong Acid Contact: Hydrogen.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No inhalation hazard under normal conditions. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Inhalation of dust (generated at high temperatures only) or oil mist from this product may cause mild irritation of the upper respiratory tract. Fumes released during processing of mineral oil treated steel surface may cause irritation to the respiratory system. High concentrations: Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection in the respiratory tract.
Skin contact	Under normal conditions of intended use, this material does not pose a risk to health. Dust may irritate skin. Oil coating may cause temporary irritation to skin. Skin contact may aggravate an existing dermatitis. Contact with hot material can cause thermal burns which may result in permanent damage.
Eye contact	Under normal conditions of intended use, this material does not pose a risk to health. Contact with hot material can cause thermal burns which may result in permanent damage. Grinding and sanding this product may generate dust. Dust may irritate the eyes.
Ingestion	Solid steel: Not relevant, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.

Symptoms related to the physical, chemical and toxicological characteristics

Exposed individuals may experience eye tearing, redness, and discomfort. May dry the skin leading to discomfort and dermatitis. Prolonged contact may cause redness, irritation and cracking. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills. Exposed individuals may experience eye tearing, redness, and discomfort.

Information on toxicological effects

Acute toxicity Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract. High concentrations of freshly-formed fumes of zinc oxide can produce symptoms of metal fume fever.

Components	Species	Test Results
Iron (CAS 7439-89-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	250 mg/m3, 6 hours, (Carbonyl iron)
<i>Oral</i>		
LD50	Rat	7500 mg/kg
Silicon (CAS 7440-21-3)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.08 mg/l, 4 hours
<i>Oral</i>		
LD50	Rat	3160 mg/kg
Skin corrosion/irritation	Dust may irritate skin.	
Serious eye damage/eye irritation	Dust may irritate the eyes.	
Respiratory or skin sensitization		
Respiratory sensitization	Not relevant, due to the form of the product. Contains nickel: May cause allergy or asthma symptoms or breathing difficulties if inhaled. This ingredient is bound within the product and release is not expected under normal condition.	
Skin sensitization	Contains nickel: May cause an allergic skin reaction. Mineral oil: Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne.	
Germ cell mutagenicity	Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of causing genetic defects. This ingredient is bound within the product and release is not expected under normal condition.	

Carcinogenicity Not relevant, due to the form of the product. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. Inhalation of high concentrations of iron oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Vanadium pentoxide is classified as possibly carcinogenic to humans (Group 2B) by IARC. A residual chrome VI compound from the surface coating is water soluble and is carcinogenic. Chromium VI compounds are regarded as human carcinogens by IARC, NTP, OSHA and ACGIH. This ingredient is bound within the product and release is not expected under normal condition.

IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.
Iron oxide** (CAS 1309-37-1)	3 Not classifiable as to carcinogenicity to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
Vanadium pentoxide** (CAS 1314-62-1)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Nickel (CAS 7440-02-0)	Reasonably Anticipated to be a Human Carcinogen.
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OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of damaging fertility or the unborn child. This ingredient is bound within the product and release is not expected under normal condition.

Specific target organ toxicity - single exposure No data available.

Specific target organ toxicity - repeated exposure Not relevant, due to the form of the product. Contains Manganese: Causes damage to organs (lung) through prolonged or repeated exposure by inhalation. This ingredient is bound within the product and release is not expected under normal condition.

Aspiration hazard Due to the physical form of the product it is not an aspiration hazard.

Chronic effects Frequent inhalation of dust over a long period of time increases the risk of developing asthma, chronic lung diseases, and skin irritation. Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to benign pneumoconiosis (siderosis). Exposure to manganese fume/dust can affect the central nervous system (apathy, drowsiness, weakness and other chronic symptoms such as postural tremors). A residual chrome VI compound from the surface coating is water soluble and is carcinogenic. Chromium VI compounds are regarded as human carcinogens by IARC, NTP, OSHA and ACGIH. Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure. The ingredients of the alloy are bound within the product and release is not expected under normal conditions.

12. Ecological information

Ecotoxicity The environmental hazard of the product is considered to be limited.

Components	Species	Test Results
Zinc oxide** (CAS 1314-13-2)		
Aquatic		
Crustacea	LC50 Water flea (Daphnia magna)	0.098 mg/l, 48 hours

Persistence and degradability No data available.

Bioaccumulative potential No data available on bioaccumulation.

Mobility in soil Not relevant, due to the form of the product.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Dispose waste and residues in accordance with applicable federal, state, and local regulations.

Hazardous waste code Not regulated.

Waste from residues / unused products Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Recover and recycle, if practical.

Contaminated packaging 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 Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 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
Vanadium pentoxide** (CAS 1314-62-1)	LISTED
Zinc oxide** (CAS 1314-13-2)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

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

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Vanadium pentoxide**	1314-62-1	1000		100 lbs	10000 lbs

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Nickel	7440-02-0	0-0.4

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 WARNING: This product contains chemical(s) known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

Chromium (CAS 7440-47-3)
Iron oxide** (CAS 1309-37-1)
Manganese (CAS 7439-96-5)

Nickel (CAS 7440-02-0)
Silicon (CAS 7440-21-3)
Vanadium (CAS 7440-62-2)
Vanadium pentoxide** (CAS 1314-62-1)
Zinc oxide** (CAS 1314-13-2)

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

Chromium (CAS 7440-47-3)
Iron oxide** (CAS 1309-37-1)
Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Silicon (CAS 7440-21-3)
Vanadium (CAS 7440-62-2)
Vanadium pentoxide** (CAS 1314-62-1)
Zinc oxide** (CAS 1314-13-2)

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

Chromium (CAS 7440-47-3)
Iron oxide** (CAS 1309-37-1)
Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Silicon (CAS 7440-21-3)
Vanadium (CAS 7440-62-2)
Vanadium pentoxide** (CAS 1314-62-1)
Zinc oxide** (CAS 1314-13-2)

US. Rhode Island RTK

Chromium (CAS 7440-47-3)
Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Vanadium (CAS 7440-62-2)
Vanadium pentoxide** (CAS 1314-62-1)
Zinc oxide** (CAS 1314-13-2)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Nickel (CAS 7440-02-0)
Vanadium pentoxide** (CAS 1314-62-1)

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 13-January-2015
Revision date -
Version # 01
HMIS® ratings Health: 0
Flammability: 0
Physical hazard: 0

Disclaimer This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. SDS's for specific coatings are available upon request.

1. Identification

Product identifier Galvalume®
Other means of identification None.
Recommended use Steel Fabricated Parts.
Recommended restrictions None known.
Manufacturer/Importer/Supplier/Distributor information
Company name Steel Dynamics Columbus Division
Address 1945 Airport Rd
 Columbus, MS 39701
 US
Telephone Telephone 662-245-4200
E-mail Not available.
Contact person Chem Tel (24 Hr. Emergency)
Emergency phone number 800-255-3924

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Not classified.
OSHA defined hazards Not classified.
Label elements
Hazard symbol None.
Signal word None.
Hazard statement None.
Precautionary statement
Prevention Avoid creating dust.
Response Wash skin with soap and water.
Storage Store away from incompatible materials.
Disposal Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information

In its manufactured and shipped state, this product is considered non-hazardous. Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Iron	7439-89-6	90-100
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Silicon	7440-21-3	0-1
Nickel	7440-02-0	0-0.4
Vanadium	7440-62-2	0-0.2
Aluminum oxide**	1344-28-1	0

Iron oxide**	1309-37-1	0
Vanadium pentoxide**	1314-62-1	0
Zinc oxide**	1314-13-2	0

The product is an alloy. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. The surface is coated with molten Galvalume® consisting of Aluminum approximately 55%, Zinc approximately 43.5% with the remainder composed primarily of silicon. The surface may be passivated with chromic acid leaving residual coating of chrome III and VI compounds. The steel is treated with mineral oil.

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
 **Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide and aluminum oxide fumes may be formed during burning, cutting, or welding.

4. First-aid measures

Inhalation In case of inhalation of fumes from heated product: Move into fresh air and keep at rest. Get medical attention if symptoms persist. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration.

Skin contact Wash skin with soap and water. In case of burns with hot metal, rinse with plenty of cold water. If burns are severe, consult a physician. If skin irritation or an allergic skin reaction develops, get medical attention.

Eye contact Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.

Ingestion Solid steel: Not applicable. Dust: Get medical attention if any discomfort continues.

Most important symptoms/effects, acute and delayed High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills.

5. Fire-fighting measures

Suitable extinguishing media No unusual fire or explosion hazards noted. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical At temperatures above the melting point, may liberate fumes of iron, nickel, and zinc oxide.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Cold solid metal: No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product. Hot metal: Avoid contact with hot material. Wear protective clothing as described in Section 8 of this safety data sheet.

Methods and materials for containment and cleaning up In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental precautions Collect for recycling.
 No specific precautions.

7. Handling and storage

Precautions for safe handling Oil coating can make material slippery. Avoid contact with sharp edges and hot surfaces. Use appropriate gloves and tools to ensure safe handling. Use work methods which minimize dust/fume production. Do not breathe fumes and dusts. Observe safety measures suited to the coating(s) when handling, cutting or melting. Follow the recommendations in ANSI Z49.1, Safety in welding and cutting (ANSI=American National Standard Institute). Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store in a dry place. Store away from: Oxidizing agents. Acids.

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
Aluminum oxide** (CAS 1344-28-1)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
Chromium (CAS 7440-47-3)	PEL	1 mg/m ³	
Iron oxide** (CAS 1309-37-1)	PEL	10 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	PEL	1 mg/m ³	
Silicon (CAS 7440-21-3)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.5 mg/m ³	Respirable dust.
		0.1 mg/m ³	Fume.
Zinc oxide** (CAS 1314-13-2)	PEL	5 mg/m ³	Respirable fraction.
		5 mg/m ³	Fume.
		15 mg/m ³	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum oxide** (CAS 1344-28-1)	TWA	1 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Respirable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.
Vanadium pentoxide** (CAS 1314-62-1)	TWA	0.05 mg/m ³	Inhalable fraction.
Zinc oxide** (CAS 1314-13-2)	STEL	10 mg/m ³	Respirable fraction.
	TWA	2 mg/m ³	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Dust and fume.
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	Fume.
	TWA	1 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total
Vanadium (CAS 7440-62-2)	STEL	3 mg/m ³	
	TWA	1 mg/m ³	
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.05 mg/m ³	Fume.
		0.05 mg/m ³	Dust.
Zinc oxide** (CAS 1314-13-2)	Ceiling	15 mg/m ³	Dust.
	STEL	10 mg/m ³	Fume.
	TWA	5 mg/m ³	Fume.
		5 mg/m ³	Dust.

Biological limit values

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

Exposure guidelines

**Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide and aluminum oxide fumes may be formed during burning, cutting, or welding.

Appropriate engineering controls	Adequate ventilation should be provided so that exposure limits are not exceeded. Use local exhaust when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Use of safety glasses or goggles is required for welding, burning, sawing, brazing, grinding or machining operations. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.
Skin protection	
Hand protection	Wear protective gloves.
Other	Wear suitable protective clothing.
Respiratory protection	Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
Thermal hazards	When material is heated, wear gloves to protect against thermal burns. Thermally protective apron and long sleeves are recommended when volume of hot material is significant.
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. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Rolled or stacked sheet.
Color	Metallic gray.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	2750 °F (1510 °C) / Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not applicable.
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.

10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	This product is stable under expected conditions of use.

Possibility of hazardous reactions	Will not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids. Oxidizing agents.
Hazardous decomposition products	At elevated temperatures: Acrid fumes. Metallic fumes. Strong Acid Contact: Hydrogen.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No inhalation hazard under normal conditions. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Inhalation of dust (generated at high temperatures only) or oil mist from this product may cause mild irritation of the upper respiratory tract. Fumes released during processing of mineral oil treated steel surface may cause irritation to the respiratory system. High concentrations: Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection in the respiratory tract.
Skin contact	Under normal conditions of intended use, this material does not pose a risk to health. Dust may irritate skin. Oil coating may cause temporary irritation to skin. Skin contact may aggravate an existing dermatitis. Contact with hot material can cause thermal burns which may result in permanent damage.
Eye contact	Under normal conditions of intended use, this material does not pose a risk to health. Contact with hot material can cause thermal burns which may result in permanent damage. Grinding and sanding this product may generate dust. Dust may irritate the eyes.
Ingestion	Solid steel: Not relevant, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.

Symptoms related to the physical, chemical and toxicological characteristics

Exposed individuals may experience eye tearing, redness, and discomfort. May dry the skin leading to discomfort and dermatitis. Prolonged contact may cause redness, irritation and cracking. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills. Exposed individuals may experience eye tearing, redness, and discomfort.

Information on toxicological effects

Acute toxicity Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

Components	Species	Test Results
Aluminum oxide** (CAS 1344-28-1)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.3 mg/l, 4 Hours
Iron (CAS 7439-89-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	250 mg/m3, 6 hours, (Carbonyl iron)
<i>Oral</i>		
LD50	Rat	7500 mg/kg
Silicon (CAS 7440-21-3)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.08 mg/l, 4 hours
<i>Oral</i>		
LD50	Rat	3160 mg/kg
Skin corrosion/irritation	Dust may irritate skin.	
Serious eye damage/eye irritation	Dust may irritate the eyes.	

Respiratory or skin sensitization

Respiratory sensitization Not relevant, due to the form of the product. Contains nickel: May cause allergy or asthma symptoms or breathing difficulties if inhaled. This ingredient is bound within the product and release is not expected under normal condition.

Skin sensitization Contains nickel: May cause an allergic skin reaction.
Mineral oil: Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. This ingredient is bound within the product and release is not expected under normal condition.

Germ cell mutagenicity Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of causing genetic defects.
This ingredient is bound within the product and release is not expected under normal condition.

Carcinogenicity Not relevant, due to the form of the product. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. Inhalation of high concentrations of iron oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Vanadium pentoxide is classified as possibly carcinogenic to humans (Group 2B) by IARC.
This ingredient is bound within the product and release is not expected under normal condition.

IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.
Iron oxide** (CAS 1309-37-1)	3 Not classifiable as to carcinogenicity to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
Vanadium pentoxide** (CAS 1314-62-1)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Nickel (CAS 7440-02-0)	Reasonably Anticipated to be a Human Carcinogen.
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OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of damaging fertility or the unborn child.
This ingredient is bound within the product and release is not expected under normal condition.

Specific target organ toxicity - single exposure No data available.

Specific target organ toxicity - repeated exposure Not relevant, due to the form of the product. Contains Manganese: Causes damage to organs (lung) through prolonged or repeated exposure by inhalation. This ingredient is bound within the product and release is not expected under normal condition.

Aspiration hazard Due to the physical form of the product it is not an aspiration hazard.

Chronic effects Frequent inhalation of dust over a long period of time increases the risk of developing asthma, chronic lung diseases, and skin irritation. Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to benign pneumoconiosis (siderosis). Exposure to manganese fume/dust can affect the central nervous system (apathy, drowsiness, weakness and other chronic symptoms such as postural tremors). Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure.
The ingredients of the alloy are bound within the product and release is not expected under normal conditions.

12. Ecological information

Ecotoxicity The environmental hazard of the product is considered to be limited.

Components	Species	Test Results
Zinc oxide** (CAS 1314-13-2)		
Aquatic		
Crustacea	LC50 Water flea (Daphnia magna)	0.098 mg/l, 48 hours

Persistence and degradability No data available.

Bioaccumulative potential No data available on bioaccumulation.

Mobility in soil Not relevant, due to the form of the product.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Dispose waste and residues in accordance with applicable federal, state, and local regulations.

Hazardous waste code	Not regulated.
Waste from residues /unused products	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Recover and recycle, if practical.
Contaminated packaging	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	Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.
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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
Vanadium pentoxide** (CAS 1314-62-1)	LISTED
Zinc oxide** (CAS 1314-13-2)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Vanadium pentoxide**	1314-62-1	1000		100 lbs	10000 lbs

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Nickel	7440-02-0	0-0.4

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 WARNING: This product contains chemical(s) known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Iron oxide** (CAS 1309-37-1)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

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

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Iron oxide** (CAS 1309-37-1)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

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

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Iron oxide** (CAS 1309-37-1)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

US. Rhode Island RTK

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

- Nickel (CAS 7440-02-0)
- Vanadium pentoxide** (CAS 1314-62-1)

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	13-January-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 0 Flammability: 0 Physical hazard: 0

Disclaimer

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. SDS's for specific coatings are available upon request.

1. Identification

Product identifier **Prepainted Steel Sheet Coil-Galvalume®**
Other means of identification None.
Recommended use Steel Fabricated Parts.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name Steel Dynamics Columbus Division
Address 1945 Airport Road
 Columbus, MS 39701
 US
Telephone 662-245-4200
E-mail Not available.
Contact person Chem Tel
Emergency phone number 800-255-3924

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Not classified.
OSHA defined hazards Not classified.

Label elements

Hazard symbol None.
Signal word None.
Hazard statement None.
Precautionary statement
 Prevention Avoid creating dust.
 Response Wash skin with soap and water.
 Storage Store away from incompatible materials.
 Disposal Dispose of waste and residues in accordance with local authority requirements.

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

Supplemental information

In its manufactured and shipped state, this product is considered non-hazardous. Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Iron	7439-89-6	90-100
Coating(s)	-	< 3
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Silicon	7440-21-3	0-1
Nickel	7440-02-0	0-0.4
Vanadium	7440-62-2	0-0.2

Aluminum oxide**	1344-28-1	0
Iron oxide**	1309-37-1	0
Vanadium pentoxide**	1314-62-1	0
Zinc oxide**	1314-13-2	0

The product is an alloy. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. The surface is coated with molten Galvalume® consisting of Aluminum approximately 55%, Zinc approximately 43.5% with the remainder composed primarily of silicon. The surface may be passivated with chromic acid leaving residual coating of chrome III and VI compounds. The treated alloy surface is coated. Coatings may include vinyl, epoxy, polyester, siliconized polyester, acrylic, fluorocarbons, polyurethane, petrolatum, chromium conversion and titanium conversion.

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
 **Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide and aluminum oxide fumes may be formed during burning, cutting, or welding.

4. First-aid measures

Inhalation

In case of inhalation of fumes from heated product: Move into fresh air and keep at rest. Get medical attention if symptoms persist. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration.

Skin contact

Wash skin with soap and water. In case of burns with hot metal, rinse with plenty of cold water. If burns are severe, consult a physician. If skin irritation or an allergic skin reaction develops, get medical attention.

Eye contact

Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.

Ingestion

Solid steel: Not applicable. Dust: Get medical attention if any discomfort continues.

Most important symptoms/effects, acute and delayed

High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills.

5. Fire-fighting measures

Suitable extinguishing media

No unusual fire or explosion hazards noted. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media

None known.

Specific hazards arising from the chemical

At temperatures above the melting point, may liberate fumes of iron, nickel, and zinc oxide.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Cold solid metal: No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product. Hot metal: Avoid contact with hot material. Wear protective clothing as described in Section 8 of this safety data sheet.

Methods and materials for containment and cleaning up

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental precautions

Collect for recycling.

No specific precautions.

7. Handling and storage

Precautions for safe handling

Avoid contact with sharp edges and hot surfaces. Use appropriate gloves and tools to ensure safe handling. Use work methods which minimize dust/fume production. Do not breathe fumes and dusts. Observe safety measures suited to the coating(s) when handling, cutting or melting. Follow the recommendations in ANSI Z49.1, Safety in welding and cutting (ANSI=American National Standard Institute). Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in a dry place. Store away from: Oxidizing agents. Acids.

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
Aluminum oxide** (CAS 1344-28-1)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
Chromium (CAS 7440-47-3)	PEL	1 mg/m ³	
Iron oxide** (CAS 1309-37-1)	PEL	10 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	PEL	1 mg/m ³	
Silicon (CAS 7440-21-3)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.5 mg/m ³	Respirable dust.
		0.1 mg/m ³	Fume.
Zinc oxide** (CAS 1314-13-2)	PEL	5 mg/m ³	Respirable fraction.
		5 mg/m ³	Fume.
		15 mg/m ³	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum oxide** (CAS 1344-28-1)	TWA	1 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Respirable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.
Vanadium pentoxide** (CAS 1314-62-1)	TWA	0.05 mg/m ³	Inhalable fraction.
Zinc oxide** (CAS 1314-13-2)	STEL	10 mg/m ³	Respirable fraction.
	TWA	2 mg/m ³	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Dust and fume.
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	Fume.
	TWA	1 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total
Vanadium (CAS 7440-62-2)	STEL	3 mg/m ³	
	TWA	1 mg/m ³	
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.05 mg/m ³	Fume.
		0.05 mg/m ³	Dust.
Zinc oxide** (CAS 1314-13-2)	Ceiling	15 mg/m ³	Dust.
		10 mg/m ³	Fume.
	STEL	5 mg/m ³	Fume.
		5 mg/m ³	Dust.

Biological limit values

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

Exposure guidelines

**Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide and aluminum oxide fumes may be formed during burning, cutting, or welding.

Appropriate engineering controls	Adequate ventilation should be provided so that exposure limits are not exceeded. Use local exhaust when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Use of safety glasses or goggles is required for welding, burning, sawing, brazing, grinding or machining operations. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.
Skin protection	
Hand protection	Wear protective gloves.
Other	Wear suitable protective clothing.
Respiratory protection	Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
Thermal hazards	When material is heated, wear gloves to protect against thermal burns. Thermally protective apron and long sleeves are recommended when volume of hot material is significant.
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. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Sheet coil.
Color	Various colors.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	2750 °F (1510 °C) / Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not applicable.
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.

10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	This product is stable under expected conditions of use.

Possibility of hazardous reactions	Will not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids. Oxidizing agents.
Hazardous decomposition products	At elevated temperatures: Acrid fumes. Carbon oxides. Metallic fumes. Nitrogen oxides. Sulfur oxides. Strong Acid Contact: Hydrogen. Inorganic compounds.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No inhalation hazard under normal conditions. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Inhalation of dust (generated at high temperatures only) or oil mist from this product may cause mild irritation of the upper respiratory tract. Fumes released during processing of mineral oil treated steel surface may cause irritation to the respiratory system. High concentrations: Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection in the respiratory tract.
Skin contact	Under normal conditions of intended use, this material does not pose a risk to health. Dust may irritate skin. Oil coating may cause temporary irritation to skin. Skin contact may aggravate an existing dermatitis. Contact with hot material can cause thermal burns which may result in permanent damage.
Eye contact	Under normal conditions of intended use, this material does not pose a risk to health. Contact with hot material can cause thermal burns which may result in permanent damage. Grinding and sanding this product may generate dust. Dust may irritate the eyes.
Ingestion	Solid steel: Not relevant, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.

Symptoms related to the physical, chemical and toxicological characteristics

Exposed individuals may experience eye tearing, redness, and discomfort. May dry the skin leading to discomfort and dermatitis. Prolonged contact may cause redness, irritation and cracking. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills. Exposed individuals may experience eye tearing, redness, and discomfort.

Information on toxicological effects

Acute toxicity Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

Components	Species	Test Results
Aluminum oxide** (CAS 1344-28-1)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.3 mg/l, 4 Hours
Iron (CAS 7439-89-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	250 mg/m3, 6 hours, (Carbonyl iron)
<i>Oral</i>		
LD50	Rat	7500 mg/kg
Silicon (CAS 7440-21-3)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.08 mg/l, 4 hours
<i>Oral</i>		
LD50	Rat	3160 mg/kg
Skin corrosion/irritation	Dust may irritate skin.	
Serious eye damage/eye irritation	Dust may irritate the eyes.	

Respiratory or skin sensitization

Respiratory sensitization Not relevant, due to the form of the product. Contains nickel: May cause allergy or asthma symptoms or breathing difficulties if inhaled. This ingredient is bound within the product and release is not expected under normal condition.

Skin sensitization Contains nickel: May cause an allergic skin reaction.
Mineral oil: Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. This ingredient is bound within the product and release is not expected under normal condition.

Germ cell mutagenicity Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of causing genetic defects.
This ingredient is bound within the product and release is not expected under normal condition.

Carcinogenicity Not relevant, due to the form of the product. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. Inhalation of high concentrations of iron oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Vanadium pentoxide is classified as possibly carcinogenic to humans (Group 2B) by IARC.
This ingredient is bound within the product and release is not expected under normal condition.

IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.
Iron oxide** (CAS 1309-37-1)	3 Not classifiable as to carcinogenicity to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
Vanadium pentoxide** (CAS 1314-62-1)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Nickel (CAS 7440-02-0)	Reasonably Anticipated to be a Human Carcinogen.
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OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of damaging fertility or the unborn child.
This ingredient is bound within the product and release is not expected under normal condition.

Specific target organ toxicity - single exposure No data available.

Specific target organ toxicity - repeated exposure Not relevant, due to the form of the product. Contains Manganese: Causes damage to organs (lung) through prolonged or repeated exposure by inhalation. This ingredient is bound within the product and release is not expected under normal condition.

Aspiration hazard Due to the physical form of the product it is not an aspiration hazard.

Chronic effects Frequent inhalation of dust over a long period of time increases the risk of developing asthma, chronic lung diseases, and skin irritation. Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to benign pneumoconiosis (siderosis). Exposure to manganese fume/dust can affect the central nervous system (apathy, drowsiness, weakness and other chronic symptoms such as postural tremors). Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure.
The ingredients of the alloy are bound within the product and release is not expected under normal conditions.

12. Ecological information

Ecotoxicity The environmental hazard of the product is considered to be limited.

Components	Species	Test Results
Zinc oxide** (CAS 1314-13-2)		
Aquatic		
Crustacea	LC50 Water flea (Daphnia magna)	0.098 mg/l, 48 hours

Persistence and degradability No data available.

Bioaccumulative potential No data available on bioaccumulation.

Mobility in soil Not relevant, due to the form of the product.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Dispose waste and residues in accordance with applicable federal, state, and local regulations.

Hazardous waste code	Not regulated.
Waste from residues /unused products	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Recover and recycle, if practical.
Contaminated packaging	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	Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.
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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
Vanadium pentoxide** (CAS 1314-62-1)	LISTED
Zinc oxide** (CAS 1314-13-2)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Vanadium pentoxide**	1314-62-1	1000		100 lbs	10000 lbs

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Nickel	7440-02-0	0-0.4

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 WARNING: This product contains chemical(s) known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Iron oxide** (CAS 1309-37-1)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

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

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Iron oxide** (CAS 1309-37-1)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

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

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Iron oxide** (CAS 1309-37-1)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Silicon (CAS 7440-21-3)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

US. Rhode Island RTK

- Aluminum oxide** (CAS 1344-28-1)
- Chromium (CAS 7440-47-3)
- Manganese (CAS 7439-96-5)
- Nickel (CAS 7440-02-0)
- Vanadium (CAS 7440-62-2)
- Vanadium pentoxide** (CAS 1314-62-1)
- Zinc oxide** (CAS 1314-13-2)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

- Nickel (CAS 7440-02-0)
- Vanadium pentoxide** (CAS 1314-62-1)

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	13-January-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 0 Flammability: 0 Physical hazard: 0

Disclaimer

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. SDS's for specific coatings are available upon request.

1. Identification

Product identifier **Prepainted Steel Sheet Coil - Galvanized**
Other means of identification None.
Recommended use Steel Fabricated Parts.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name Steel Dynamics Columbus Division
Address 1945 Airport Road
 Columbus, MS 39701
 US
Telephone 662-245-4200
E-mail Not available.
Contact person ChemTel
Emergency phone number 800-255-3924

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Not classified.
OSHA defined hazards Not classified.

Label elements

Hazard symbol None.
Signal word None.
Hazard statement None.
Precautionary statement
 Prevention Avoid creating dust.
 Response Wash skin with soap and water.
 Storage Store away from incompatible materials.
 Disposal Dispose of waste and residues in accordance with local authority requirements.

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

Supplemental information

In its manufactured and shipped state, this product is considered non-hazardous. Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Iron	7439-89-6	90-100
Coating(s)	-	< 3
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Silicon	7440-21-3	0-1
Nickel	7440-02-0	0-0.4
Vanadium	7440-62-2	0-0.2

Iron oxide**	1309-37-1	0
Vanadium pentoxide**	1314-62-1	0
Zinc oxide**	1314-13-2	0

The product is an alloy. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. The surface is galvanized with zinc. The zinc surface may be treated with chromic acid leaving a residual coating of chrome III and VI. The treated alloy surface is coated. Coatings may include vinyl, epoxy, polyester, siliconized polyester, acrylic, fluorocarbons, polyurethane, petrolatum, chromium conversion and titanium conversion.

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
 **Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide fumes may be formed during burning, cutting, or welding.

4. First-aid measures

Inhalation In case of inhalation of fumes from heated product: Move into fresh air and keep at rest. Get medical attention if symptoms persist. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration.

Skin contact Wash skin with soap and water. In case of burns with hot metal, rinse with plenty of cold water. If burns are severe, consult a physician. If skin irritation or an allergic skin reaction develops, get medical attention.

Eye contact Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.

Ingestion Solid steel: Not applicable. Dust: Get medical attention if any discomfort continues.

Most important symptoms/effects, acute and delayed High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills.

5. Fire-fighting measures

Suitable extinguishing media No unusual fire or explosion hazards noted. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical At temperatures above the melting point, may liberate fumes of iron, nickel, and zinc oxide.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Cold solid metal: No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product. Hot metal: Avoid contact with hot material. Wear protective clothing as described in Section 8 of this safety data sheet.

Methods and materials for containment and cleaning up In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.
 Collect for recycling.

Environmental precautions No specific precautions.

7. Handling and storage

Precautions for safe handling Avoid contact with sharp edges and hot surfaces. Use appropriate gloves and tools to ensure safe handling. Use work methods which minimize dust/fume production. Do not breathe fumes and dusts. Observe safety measures suited to the coating(s) when handling, cutting or melting. Follow the recommendations in ANSI Z49.1, Safety in welding and cutting (ANSI=American National Standard Institute). Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store in a dry place. Store away from: Oxidizing agents. Acids.

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/m ³	
Iron oxide** (CAS 1309-37-1)	PEL	10 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	PEL	1 mg/m ³	
Silicon (CAS 7440-21-3)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.5 mg/m ³	Respirable dust.
		0.1 mg/m ³	Fume.
Zinc oxide** (CAS 1314-13-2)	PEL	5 mg/m ³	Respirable fraction.
		5 mg/m ³	Fume.
		15 mg/m ³	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Respirable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.
Vanadium pentoxide** (CAS 1314-62-1)	TWA	0.05 mg/m ³	Inhalable fraction.
Zinc oxide** (CAS 1314-13-2)	STEL	10 mg/m ³	Respirable fraction.
	TWA	2 mg/m ³	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Iron oxide** (CAS 1309-37-1)	TWA	5 mg/m ³	Dust and fume.
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	Fume.
	TWA	1 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total
Vanadium (CAS 7440-62-2)	STEL	3 mg/m ³	
	TWA	1 mg/m ³	
Vanadium pentoxide** (CAS 1314-62-1)	Ceiling	0.05 mg/m ³	Fume.
		0.05 mg/m ³	Dust.
Zinc oxide** (CAS 1314-13-2)	Ceiling	15 mg/m ³	Dust.
	STEL	10 mg/m ³	Fume.
	TWA	5 mg/m ³	Fume.
		5 mg/m ³	Dust.

Biological limit values

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

Exposure guidelines

**Iron oxide and vanadium pentoxide are formed at temperatures above the melting point. **Zinc oxide fumes may be formed during burning, cutting, or welding.

Appropriate engineering controls

Adequate ventilation should be provided so that exposure limits are not exceeded. Use local exhaust when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure.

Individual protection measures, such as personal protective equipment

Eye/face protection	Use of safety glasses or goggles is required for welding, burning, sawing, brazing, grinding or machining operations. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.
Skin protection	
Hand protection	Wear protective gloves.
Other	Wear suitable protective clothing.
Respiratory protection	Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
Thermal hazards	When material is heated, wear gloves to protect against thermal burns. Thermally protective apron and long sleeves are recommended when volume of hot material is significant.
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. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Sheet coil.
Color	Various colors.

Odor None.

Odor threshold Not applicable.

pH Not applicable.

Melting point/freezing point 2750 °F (1510 °C) / Not applicable.

Initial boiling point and boiling range Not applicable.

Flash point Not applicable.

Evaporation rate Not applicable.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not applicable.

Flammability limit - upper (%) Not applicable.

Explosive limit - lower (%) Not applicable.

Explosive limit - upper (%) Not applicable.

Vapor pressure Not applicable.

Vapor density Not applicable.

Relative density 7 - 8

Solubility(ies)

Solubility (water) Not applicable.

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

Auto-ignition temperature Not applicable.

Decomposition temperature Not applicable.

Viscosity Not applicable.

10. Stability and reactivity

Reactivity Stable at normal conditions.

Chemical stability This product is stable under expected conditions of use.

Possibility of hazardous reactions Will not occur.

Conditions to avoid Contact with incompatible materials.

Incompatible materials Strong acids. Oxidizing agents.

Hazardous decomposition products At elevated temperatures: Acrid fumes. Carbon oxides. Halogens. Metal oxides. Nitrogen oxides. Sulfur oxides.
Strong Acid Contact: Hydrogen. Inorganic compounds.

11. Toxicological information

Information on likely routes of exposure

Inhalation No inhalation hazard under normal conditions. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Inhalation of dust (generated at high temperatures only) or oil mist from this product may cause mild irritation of the upper respiratory tract. Fumes released during processing of mineral oil treated steel surface may cause irritation to the respiratory system. High concentrations: Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection in the respiratory tract.

Skin contact Under normal conditions of intended use, this material does not pose a risk to health. Dust may irritate skin. Oil coating may cause temporary irritation to skin. Skin contact may aggravate an existing dermatitis. Contact with hot material can cause thermal burns which may result in permanent damage.

Eye contact Under normal conditions of intended use, this material does not pose a risk to health. Contact with hot material can cause thermal burns which may result in permanent damage. Grinding and sanding this product may generate dust. Dust may irritate the eyes.

Ingestion Solid steel: Not relevant, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.

Symptoms related to the physical, chemical and toxicological characteristics Exposed individuals may experience eye tearing, redness, and discomfort. May dry the skin leading to discomfort and dermatitis. Prolonged contact may cause redness, irritation and cracking. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Typical symptoms last 12 to 48 hours and are characterized by metallic taste in the mouth, dryness, and irritation of the throat, followed by weakness, muscle pain, fever, and chills. Exposed individuals may experience eye tearing, redness, and discomfort.

Information on toxicological effects

Acute toxicity Processing may generate hazardous fumes and dusts. Welding, cutting and metalizing can generate ozone. Ozone can cause irritation of eyes, nose and respiratory tract.

Components	Species	Test Results
Iron (CAS 7439-89-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	250 mg/m ³ , 6 hours, (Carbonyl iron)
<i>Oral</i>		
LD50	Rat	7500 mg/kg
Silicon (CAS 7440-21-3)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.08 mg/l, 4 hours
<i>Oral</i>		
LD50	Rat	3160 mg/kg
Skin corrosion/irritation	Dust may irritate skin.	
Serious eye damage/eye irritation	Dust may irritate the eyes.	
Respiratory or skin sensitization		
Respiratory sensitization	Not relevant, due to the form of the product. Contains nickel: May cause allergy or asthma symptoms or breathing difficulties if inhaled. This ingredient is bound within the product and release is not expected under normal condition.	
Skin sensitization	Contains nickel: May cause an allergic skin reaction. Mineral oil: Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. This ingredient is bound within the product and release is not expected under normal condition.	
Germ cell mutagenicity	Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of causing genetic defects. This ingredient is bound within the product and release is not expected under normal condition.	

Carcinogenicity

Not relevant, due to the form of the product. May liberate hazardous oxides such as iron oxides and vanadium pentoxide at temperatures above the melting point. Inhalation of high concentrations of iron oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Vanadium pentoxide is classified as possibly carcinogenic to humans (Group 2B) by IARC.
This ingredient is bound within the product and release is not expected under normal condition.

IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.
Iron oxide** (CAS 1309-37-1)	3 Not classifiable as to carcinogenicity to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
Vanadium pentoxide** (CAS 1314-62-1)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Nickel (CAS 7440-02-0)	Reasonably Anticipated to be a Human Carcinogen.
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OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity

Not relevant, due to the form of the product. May liberate hazardous vanadium pentoxide at temperatures above the melting point. Vanadium pentoxide is classified as suspected of damaging fertility or the unborn child.
This ingredient is bound within the product and release is not expected under normal condition.

Specific target organ toxicity - single exposure

No data available.

Specific target organ toxicity - repeated exposure

Not relevant, due to the form of the product. Contains Manganese: Causes damage to organs (lung) through prolonged or repeated exposure by inhalation. This ingredient is bound within the product and release is not expected under normal condition.

Aspiration hazard

Due to the physical form of the product it is not an aspiration hazard.

Chronic effects

Frequent inhalation of dust over a long period of time increases the risk of developing asthma, chronic lung diseases, and skin irritation. Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to benign pneumoconiosis (siderosis). Exposure to manganese fume/dust can affect the central nervous system (apathy, drowsiness, weakness and other chronic symptoms such as postural tremors). Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure.
The ingredients of the alloy are bound within the product and release is not expected under normal conditions.

12. Ecological information**Ecotoxicity**

The environmental hazard of the product is considered to be limited.

Components	Species	Test Results
Zinc oxide** (CAS 1314-13-2)		
Aquatic		
Crustacea	LC50 Water flea (Daphnia magna)	0.098 mg/l, 48 hours

Persistence and degradability

No data available.

Bioaccumulative potential

No data available on bioaccumulation.

Mobility in soil

Not relevant, due to the form of the product.

Other adverse effects

None known.

13. Disposal considerations**Disposal instructions**

Dispose waste and residues in accordance with applicable federal, state, and local regulations.

Hazardous waste code

Not regulated.

Waste from residues / unused products

Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Recover and recycle, if practical.

Contaminated packaging

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** Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 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
Vanadium pentoxide** (CAS 1314-62-1)	LISTED
Zinc oxide** (CAS 1314-13-2)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories** Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No**SARA 302 Extremely hazardous substance**

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Vanadium pentoxide**	1314-62-1	1000		100 lbs	10000 lbs

SARA 311/312 Hazardous chemical Yes**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Manganese	7439-96-5	0-2
Chromium	7440-47-3	0-1
Nickel	7440-02-0	0-0.4

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** WARNING: This product contains chemical(s) known to the State of California to cause cancer.**US. Massachusetts RTK - Substance List**Chromium (CAS 7440-47-3)
Iron oxide** (CAS 1309-37-1)
Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Silicon (CAS 7440-21-3)
Vanadium (CAS 7440-62-2)
Vanadium pentoxide** (CAS 1314-62-1)
Zinc oxide** (CAS 1314-13-2)

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

Chromium (CAS 7440-47-3)
 Iron oxide** (CAS 1309-37-1)
 Manganese (CAS 7439-96-5)
 Nickel (CAS 7440-02-0)
 Silicon (CAS 7440-21-3)
 Vanadium (CAS 7440-62-2)
 Vanadium pentoxide** (CAS 1314-62-1)
 Zinc oxide** (CAS 1314-13-2)

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

Chromium (CAS 7440-47-3)
 Iron oxide** (CAS 1309-37-1)
 Manganese (CAS 7439-96-5)
 Nickel (CAS 7440-02-0)
 Silicon (CAS 7440-21-3)
 Vanadium (CAS 7440-62-2)
 Vanadium pentoxide** (CAS 1314-62-1)
 Zinc oxide** (CAS 1314-13-2)

US. Rhode Island RTK

Chromium (CAS 7440-47-3)
 Manganese (CAS 7439-96-5)
 Nickel (CAS 7440-02-0)
 Vanadium (CAS 7440-62-2)
 Vanadium pentoxide** (CAS 1314-62-1)
 Zinc oxide** (CAS 1314-13-2)

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Nickel (CAS 7440-02-0)
 Vanadium pentoxide** (CAS 1314-62-1)

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 13-January-2015
Revision date -
Version # 01
HMIS® ratings Health: 0
 Flammability: 0
 Physical hazard: 0

Disclaimer This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. SDS's for specific coatings are available upon request.



QUEST

INDUSTRIAL PRODUCTS

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT CODE : 03769 683194 .6B
PRODUCT NAME : DESERT SAND
PRODUCT CLASS : Touch-Up Bottle

MSDS PREPARATION DATE : 10/20/2014

MANUFACTURER IDENTIFICATION:

QUEST INDUSTRIAL PRODUCTS
PO BOX 1090
MENOMONEE FALLS WI 53052-1090

CUSTOMER IDENTIFICATION:

Central States Manufacturing
302 Jane Place
Lowell AR 72745

EMERGENCY TELEPHONE NUMBERS:

24 HOURS A DAY - CALL CHEMTREC : 800-424-9300
INTERNATIONAL CALLS TO CHEMTREC : 703-527-3887
8 AM TO 4:30 PM CENTRAL TIME : 262-255-9500

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

1 CARBON BLACK

CAS# 1333-86-4

CARBON BLACK

PCT BY WT: .1220

EXPOSURE LIMIT:

ACGIH TLV-TWA 3.0 mg/m3 (inhalable fraction)
ACGIH TLV-STEL NO INFO
OSHA PEL-TWA 3.5 mg/m3
OTHER PROP 65-Cancer, listed 2/21/03, IARC(2B)

OTHER LIMITS:

EINECS 215-609-9

2 ETHYLBENZENE

CAS# 100-41-4

ETHYLBENZENE

PCT BY WT: .7770 VAPOR PRESSURE: 7.000 MMHG @ 68F LEL .80

EXPOSURE LIMIT:

ACGIH TLV-TWA 100 ppm
ACGIH TLV-STEL 125 ppm
OSHA PEL-TWA 100 ppm
OSHA PEL-STEL 125 ppm
OTHER IARC (2B), CALIFORNIA PROP 65 (Cancer 6/11/2004)
LD50(ORAL) 3500 mg/kg (rat)
LD50(DERMAL) 20574 mg/kg (rabbit)
LC50 17623 mg/m3 (rat)

OTHER LIMITS:

PROP 65-Cancer, listed 6/11/04 EINECS 202-849-4

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3 AMORPHOUS PRECIPITATED SILICA

CAS# 112926-00-8

AMORPHOUS PRECIPITATED SILICA

PCT BY WT: 1.0000

EXPOSURE LIMIT:

ACGIH TLV-TWA	10 mg/m3
ACGIH TLV-STEL	NO INFO
LD50(ORAL)	>10000 mg/kg (rat)
LD50(DERMAL)	NO INFORMATION
LC50	>139 mg/m3 (rat)

OTHER LIMITS:

EINECS NONE

4 TITANIUM DIOXIDE

CAS# 13463-67-7

TITANIUM DIOXIDE

PCT BY WT: 9.0000

EXPOSURE LIMIT:

ACGIH TLV-TWA	10 mg/m3
ACGIH TLV-STEL	NO INFO
OSHA PEL-TWA	10 mg/m3
COMPANY	N.E.
LD50(ORAL)	> 24000 mg/kg (rat)
LC50	> 6820 mg/m3 (rat)

OTHER LIMITS:

EINECS 236-675-5

5 XYLENE

CAS# 1330-20-7

XYLENE

PCT BY WT: 4.0000 VAPOR PRESSURE: 6.600 MMHG @ 68F LEL 1.00

EXPOSURE LIMIT:

ACGIH TLV-TWA	100 ppm
ACGIH TLV-STEL	150 ppm
OSHA PEL-TWA	100 ppm
OSHA PEL-STEL	150 ppm
COMPANY	N.E.
LD50(ORAL)	4300 mg/kg (rat)
LD50(DERMAL)	1700 mg/kg (rabbit)
LC50	18892 mg/m3 (rat)

OTHER LIMITS:



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EINECS 215-535-7

6 METHYL ETHYL KETONE

CAS# 78-93-3

METHYL ETHYL KETONE

PCT BY WT: 16.0000 VAPOR PRESSURE: 85.000 MMHG @ 68F LEL 1.80

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EXPOSURE LIMIT:

ACGIH TLV-TWA	200 ppm
ACGIH TLV-STEL	300 ppm
OSHA PEL-TWA	200 ppm
COMPANY	N.E.
LD50(ORAL)	2737 mg/kg (rat)
LD50(DERMAL)	6480 mg/kg (rat)
LC50	23500 mg/m3 (rat)

OTHER LIMITS:

EINECS 201-159-0

7 GLYCOL ETHER PM ACETATE

CAS# 108-65-6

PROPYLENE GLYCOL METHYL ETHER ACETATE

PCT BY WT: 15.0000 VAPOR PRESSURE: 3.700 MMHG @ 68F LEL 1.30

EXPOSURE LIMIT:

ACGIH TLV-TWA	NOT ESTABLISHED
ACGIH TLV-STEL	NOT ESTABLISHED
LD50(ORAL)	8500 mg/kg (rat)
LD50(DERMAL)	5000 mg/kg (rat)
LC50	5321 mg/m3 (rat)

OTHER LIMITS:

EINECS 203-603-9

8 TOLUENE

CAS# 108-88-3

TOLUENE

PCT BY WT: 25.0000 VAPOR PRESSURE: 38.000 MMHG @ 68F LEL 1.40

EXPOSURE LIMIT:

ACGIH TLV-TWA	20 ppm
ACGIH TLV-STEL	NO INFO
OSHA PEL-TWA	50 ppm
COMPANY	N.E.
LD50(ORAL)	636 mg/kg (rat)
LD50(DERMAL)	14124 mg/kg (rabbit)
LC50	7523 mg/m3 (mouse)

OTHER LIMITS:

Prop 65-Developmental-01/01/91 EINECS 203-625-9



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 This product contains one or more reported carcinogens or suspected carcinogens which are noted NTP, IARC, or OSHA-Z in the other limits recommended column.

 This substance is classified as a hazardous air pollutant.

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SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Harmful if inhaled.
- Harmful if absorbed through skin.
- Causes eye irritation.
- Causes skin irritation.
- Vapors irritating to eyes and respiratory tract.
- Flammable liquid and vapor.

EYE:

- May cause eye burns.

SKIN:

- May cause skin irritation.
- Prolonged contact with the skin can cause chemical burns.
- Harmful if absorbed through the skin.
- Skin contact may aggravate an existing dermatitis.

INHALATION:

- Exposure to high concentrations of vapors may cause dizziness, breathing difficulty, headaches or respiratory irritation.
- Extremely high concentrations may cause drowsiness, staggering, confusion, unconsciousness, coma or death.
- Excessive inhalation of vapors can cause nasal and respiratory irritation.
- Liquid or vapor may be irritating to skin, eyes, throat or lungs.
- Prolonged inhalation of dusts containing free silica may result in the development of a disabling pulmonary fibrosis(lung disease) known as silicosis.
- Intentional misuse by deliberately concentrating and inhaling the contents of this product can be harmful or fatal.
- Respiratory symptoms associated with pre-existing lung disorders may be aggravated by exposure to material(s) is this product.

INGESTION:

- Moderately toxic. May cause stomach discomfort, nausea, vomiting, diarrhea, and narcosis.



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May cause serious health effects if swallowed.

Aspiration of material into the lungs if swallowed or if vomiting occurs can cause chemical pneumonitis which can be fatal.

May cause nausea, vomiting and diarrhea.

CHRONIC EFFECTS:

Chronic overexposure to a component or components in this material has been found to cause the following effects in laboratory animals:

Kidney damage

Eye damage

Lung damage

Liver damage

Spleen damage

Anemia

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Brain damage

Chronic overexposure to a component or components in this product has been suggested as a cause of the following effects in humans:

Liver damage

Cardiac abnormalities

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Repeated breathing or skin contact of methyl ethyl ketone may increase the potency of neurotoxins such as hexane if exposures occur at the same time.

Central nervous system depression, shock, coma, visual disturbances, and death. Onset of symptoms may be delayed as long as 30 hours.

Rats exposed to titanium dioxide dust at 250 mg/m³ developed lung cancer, however, such exposure levels are not attainable in the workplace with this material.

The exposure risk of crystalline silica is higher when the respirable portion is available for exposure. The risk of exposure may be reduced when encapsulated in a coating. The risk of cancer depends on the duration and level of exposure to dust from sanding surfaces or mist from spray applications.

Product contains toluene which may be harmful to the fetus based on animal studies.

Repeated exposure to toluene has been associated with high frequency hearing loss in laboratory animals. The human consequences of this finding is uncertain.

In April 1996, The International Agency for Research on Cancer (IARC) published Monograph 65 which reclassifies Carbon Black into Group 2B (possibly carcinogenic to humans).

In February 2000 the International Agency for Research on Cancer (IARC) classified ethylbenzene as possibly carcinogenic to humans (Group 2B) on the basis of sufficient evidence for carcinogenicity in experimental



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animals but inadequate evidence for cancer in humans.

SECTION 4 - FIRST AID MEASURES

EYE CONTACT:

Immediately flush eyes with plenty of water. Get medical attention, if irritation persists.

Flush with large quantities of water for 15 minutes.

SKIN CONTACT:

Wash thoroughly with soap and water and seek medical attention if irritation persists. Remove contaminated clothing. Launder contaminated clothing before reuse.

INHALATION:

For inhalation overexposure move person to fresh air. If breathing stops, apply artificial respiration and seek medical attention.

INGESTION:

Since this product may contain materials which can cause lung damage if

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aspirated into the lungs, the decision whether to induce vomiting or not must be made by a physician after careful consideration of all materials ingested.

Ingestion of large quantities of this material will result in methanol poisoning. In this case treatment should include hemodialysis; the administration of ethanol to interfere with the metabolism of methanol and the administration of sodium carbonate to correct acidosis.

SECTION 5 - FIRE FIGHTING MEASURES

FIRE AND EXPLOSIVE PROPERTIES OF THE PRODUCT:

Explosion Level: Low (LEL) - .8
High (UEL)- 13.1

EXTINGUISHING MEDIA:

Use Dry Chemical, Carbon Dioxide or Chemical Foam.

FIRE-FIGHTING PROCEDURES AND EQUIPMENT:

Keep containers tightly closed. Isolate from heat, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Product vapors are heavier than air and may travel a long distance to a source of ignition and flash back.

Flashpoint: 25.0 °F

Full protective equipment including self-contained breathing apparatus to avoid inhalation of vapors should be used.

Water spray should not be used except to keep down vapors or cool closed containers to prevent build-up of pressure. If water is used, fog nozzles are preferred.



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SECTION 6 - ACCIDENTAL RELEASE MEASURES

CLEAN-UP AND CONTAINMENT:

Remove all sources of ignition. Avoid heat, sparks, flames and anything which could cause fire.

Ventilate area of spill and adjacent low lying areas. Avoid breathing solvent vapors. Remove with inert absorbent materials and non-sparking tools.

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Wash hands thoroughly after handling.

STORAGE:

Store in a cool dry area with ventilation suitable for storing materials shown in section 2.

Keep away from heat, sparks and flame.

Store in a cool place away from direct sunlight or any source of ignition. Do not store at temperatures above 120 degrees F.

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SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

ENGINEERING CONTROLS:

Sufficient ventilation, in volume and pattern, should be provided to keep air contamination below current applicable OSHA permissible exposure limit or ACGIH's TLV limit.

RESPIRATORY PROTECTION:

If workplace exposure limits are exceeded for any component(see section 2 for hazardous components and exposure limits), a NIOSH/OSHA approved respirator suitable for components listed is recommended.

SKIN PROTECTION:

Chemical resistant plastic or rubber gloves recommended for prolonged or repeated contact.

EYE PROTECTION:

Chemical goggles with side shields or face shield recommended if contact with the eyes is likely.

OTHER PROTECTIVE EQUIPMENT:

Appropriate impervious clothing is recommended if prolonged or repeated contact is likely.

HYGIENIC PRACTICES:

Wash hands before eating or smoking. Smoke in designated areas only.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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Vapor Pressure : 85.00 mm Hg @ 20 C
Vapor Density : 3.70
Boiling Range : Lower - 175.0 °F
Higher - 302.0 °F
Specific Gravity : 1.035
Formula Weight per Volume : 8.6152 LB/GL
VOC (Calculated, LB/GAL) : 5.394
VOC (Calculated, GM/L). : 646.36
Percent Volatile by Weight. : 61.7252
Percent Volatile by Volume : 73.0753
Evaporation Rate : 4.600 (n-Butyl Acetate = 1)
Viscosity : -N/A

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID:

Avoid contact with heat, sparks, and open flame.

INCOMPATIBILITIES:

Strong oxidizing agents.

DECOMPOSITION:

Thermal decomposition may produce carbon dioxide, carbon monoxide, and unidentifiable organic materials.

POLYMERIZATION:

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No hazardous polymerization will occur under normal conditions.

STABILITY:

The product is stable under normal storage conditions.

SECTION 11 - TOXICOLOGICAL INFORMATION

No specific information is available. Please refer to Section 2 and 3 for available information on exposure limits and hazards identification.

SECTION 12 - ECOLOGICAL INFORMATION

No specific ecological information is available for this product.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Place in closed containers. Dispose of product in accordance with local, county, state, and federal regulations.

SECTION 14 - TRANSPORT INFORMATION



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Ground shipment of limited or excepted quantities of aerosols or liquid paint in containers of 1 quart or less:

CONSUMER COMMODITY, ORM-D

Ground shipment of liquid paint in containers more than 1 quart:

PAINT, FLAMMABLE LIQUID, UN1263, CLASS 3, GROUP II

(Regulatory sources: DOT 49CFR 172.101)

Air shipment of limited or excepted quantities of aerosols or liquid paint in containers of 1 quart or less:

CONSUMER COMMODITY, ID 8000, CLASS 9 MISCELLANEOUS LABEL

(Regulatory sources: IATA Quantity Exemptions - Table 2.8.4, 2.7.A, 2.7.5, Packaging Instruction: 910)

OR

AEROSOLS, FLAMMABLE, UN1950, CLASS 2.1 LABEL

(Regulatory sources: IATA Quantity Exemptions - Table 2.8.1, 2.8.4, Packaging Instruction: Y203)

SECTION 15 - REGULATORY INFORMATION

SARA 313 INFORMATION:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

ETHYLBENZENE

CAS# 100-41-4 PCT BY WT: .7770

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XYLENE

CAS# 1330-20-7 PCT BY WT: 3.5450

TOLUENE

CAS# 108-88-3 PCT BY WT: 25.1860

FEDERAL REGULATIONS:

TOXIC SUBSTANCES CONTROL ACT: The chemical substances in this product are listed on the TSCA Section 8 inventory.

STATE REGULATIONS:

This product contains chemical(s) which are listed on California's proposition 65 list. If the product is to be sold or used in California a clear and reasonable warning must be provided such as:

Warning! This product contains a chemical or chemicals known to the State of California to cause cancer.

Warning! This product contains a chemical or chemicals known to the State of California to cause birth defects or other reproductive harm.

NEW JERSEY RIGHT-TO-KNOW

The following non-hazardous ingredients are among the top five



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components in this product

CHEMICAL NAME	CAS NUMBER

PENNSYLVANIA RIGHT-TO-KNOW

The following non-hazardous ingredients are present in the product at greater than 3 %

CHEMICAL NAME	CAS NUMBER

Acrylic Polymer	Not Listed
Cellulose Acetate Butyrate	9004-36-8

INTERNATIONAL REGULATIONS:

CANADA: The chemical substances in this product are listed on the Canadian Domestic Substances List.

SECTION 16 - OTHER INFORMATION

The information contained on this MSDS is believed to be reliable and accurate. Due to the changing nature of government information, it is impossible to guarantee the accuracy of the information contained herein. Since the conditions of handling and use are beyond our control, we make no guarantee of results and assume no liability for damages incurred by the use of this material. This information should not be regarded as legal advice or regulation. It is the responsibility of the user to comply with all Federal, State, and Local laws and regulations. For questions relating to specific aspects of the requirements and regulations

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consult the proper regulatory agency.

HMIS RATINGS:

HEALTH: 2* FLAMMABILITY: 3 REACTIVITY: 0 PERSONAL PROTECTION: B