

Malin Co.

Safety Data Sheet

Section 1 – Chemical Product and Company Identification

CAS Number: Not Applicable - Mixture

Synonyms: Carbon Steel Products

Product Use: Various steel wire product applications

Distributor:

Malin Co
5400 Smith Road
Brook Park, Ohio 44142

General Information: 216-267-9080

Original Issue Date: 12/2/16

Section 2-Hazard Identification

This product is a solid metal product and can range in appearance from a bright silver coloration to black.

EMERGENCY OVERVIEW:

Steel products as sold by Malin Co. are not hazardous per OSHA GHS 29 CFR 1910, 1915, 1926. However, subsequent customer processes such as welding, sawing, brazing, grinding, abrasive blasting, and machining may result in fumes, dust (combustible or otherwise), and/or particulates that may present the following hazards:

OSHA Hazards:

- Carcinogen
- Skin Sensitizer
- Target Organ Effect – Lungs

GHS Classification:

- Carcinogenicity (Category 2)
- Skin Sensitization (Category 1)
- Specific Target Organ Toxicity-Repeated Exposure (Category 1)

Pictogram(s):**Hazard Statement(s):**

- Dust/Fumes may cause an allergic skin reaction
- Dust/Fumes suspected of causing cancer via inhalation
- Inhalation of dust/fumes causes damage to respiratory tract through prolonged or repeated exposure

Precautionary Statement(s):

- Do not handle until all safety precautions have been read and understood
- Avoid breathing dust/fumes
- Use personal protective equipment as required
- If exposed or concerned: Get medical advice/attention

Potential Health Effects:

Note: Steel products in their solid state, under normal conditions, do not present an inhalation, ingestion or skin hazard. However, operations resulting in fumes or particulate formation such as welding, sawing, brazing, grinding, and machining may present health hazards.

Eye Contact:

Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

Skin Contact:

Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals (see section 16 for additional information.) Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.

Inhalation:

Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dust may result in metal fume fever, an influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 to 48 hours.

Ingestion:

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

Chronic or Special Toxic Effects:

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur.

Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NTP, OSHA, or IARC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic, and beryllium. See section 11, for additional, specific information on effects noted above.

Target Organs:

Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

Medical Conditions Aggravated by Exposure:

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

Section 3- Composition/Information on Ingredients

Component	CAS No.	% Weight	Exposure Limit (mg/m ³)			
			OSHA PEL (mg/m ³)		ACGIH TLV (mg/m ³)	
Iron	7439-89-6	93 – 99	10	Oxide Dust/Fume	5	Oxide Dust/Fume
Manganese	7439-95-4	0.2 – 2	5	Fume (Ceiling)	.1	Elemental Mn & Inorganic compounds
Silicon	7440-21-3	0-1.5	15	Dust	10	Dust
Chromium	7440-47-3	.01 – 1.2	1	Metal	.5	Metal
Molybdenum	7439-98-7	<0.9	15	Insoluble compounds	10	Insoluble compounds
Carbon	7440-44-0	<1.0	3.5	Black	3.0	Black
Nickel	7440-02-0	<1.0	1	Metal and Insoluble compounds	1.5	Metal
Sulfur	7704-34-9	<0.9	NA	Non-listed	NA	Non-listed
Tin	7440-31-5	<0.9	2	Inorganic compound	2	Metal, Oxide, and Inorganic compounds
Phosphorus	7723-14-0	<0.9	0.1	Phosphorus	0.1	Phosphorus
Copper	7440-50-8	<0.9	1	Dust	1	Dust
			0.1	Fume	0.2	Fume
Aluminum	7429-90-5	<0.05	15	Dust	NA	Dust – non-listed
			5	Respirable fraction	1	Respirable fraction

Component	CAS No.	% Weight	Exposure Limit (mg/m ³)			
			OSHA PEL (mg/m ³)		ACGIH TLV (mg/m ³)	
Vanadium	7440-62-2	<0.9	0.5 0.1	Respirable Dust Fume	.05	Vanadium pentoxide
Titanium	7440-32-6	<0.9	NA	None established	NA	None established
Boron	7440-42-8	<0.9	15	Oxide dust	10	Oxide dust
Lead	7439-92-1	<0.07	0.05	Dust/Fume	0.05	Dust/Fume (A3 carcinogen)
No other element or compound will exceed 1%						

Note: No PEL (permissible exposure limits) or TLV (threshold limit values) exist for steel. The list of elements in the table above is a summary of those which can be found in steel. Some elements may or may not be present in a given heat of steel and will vary depending on the grade of steel.

Section 4-First Aid Measures

Eye Contact:

In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lid. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

Skin Contact:

In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burns occur, flush area with cold water and get immediate medical attention.

Inhalation:

In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention if symptoms described in the SDS develop.

Ingestion:

Not considered an ingestion hazard. However, if excessive amounts of dust particulates are swallowed, treat symptomatically and supportively. Get medical attention.

Notes to Physician:

Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, remarkable leukocytosis. Treatment is symptomatic, and condition is self limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

Section 5-Fire Fighting Measures

Flash Point (Method) – Not Applicable

Flammable Limits (% volume in air) – Not Applicable

Auto Ignition Temperature – Not Applicable

Extinguishing Media – For molten metal, use dry powder or sand. For steel dust use dry sand, water foam, argon, or nitrogen.

Special Fire Fighting Procedures – Do Not Use Water on Molten Metal. Do not use Carbon Dioxide (CO₂). Firefighters should not enter confined space without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face masks and full protective equipment.

Unusual Fire or Explosion Hazards – Steel products do not present fire or explosion hazards under normal conditions. Any non-oxidized fine metal particles/dust generated by grinding, sawing, abrasive blasting, or other customer applied processes may produce material that could be combustible. Caution should be used to test for combustibility of suspended particles or dust generated by the customer's processing to assure compliance with applicable regulations. High concentrations of metallic fines in the air may present an explosion hazard.

Section 6-Accidental Release Measures

Precautions if Material is Spilled or Released - Emergency response is unlikely unless in the form of combustible dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this SDS (see section 8). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains, sewers, or waterways. Specific standards and regulations may be applicable to materials generated by individual customer processes. As appropriate, these standards and regulations should be consulted for applicability.

Fire and Explosion Hazards - Some customer processes may generate combustible dust that may require specific precautions when cleaning spills or releases dust.

Environmental Precautions - Some grades of steel may contain reportable quantities of alloying elements. See section 15 for additional information.

Waste Disposal Methods - Dispose used or unused product in accordance with applicable Federal, State, and Local regulations. Please recycle.

Section 7-Handling and Storage

Storage Temperatures - Stable under normal temperatures and pressures.

Precautions to be taken in Handling and Storage - Store away from strong oxidizers. Dusts and/or powders alone or combined with process specific fluids may form explosive mixtures with air. Applicable federal, state, and local laws may require the testing of dust generated from the processing of steel products to determine if a fire or explosion hazard exists and to determine appropriate protection methods. Avoid breathing dusts or fumes.

Section 8-Exposure Controls/Personal Protection

Operations with potential for generating high concentrations of airborne particulates or fumes should be evaluated and controlled as necessary.

Eye Protection - Use safety glasses. Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting. Face shields should be used when welding or cutting.

Skin - Appropriate protective gloves should be worn as necessary. Good personal hygiene practices should be followed including cleansing exposed skin several times daily with soap and water, and laundering or dry cleaning soiled work clothing.

Respiratory Protection - NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See section 3 for component material information and exposure limits. If such concentrations are sufficiently high that this respirator is inadequate, or high enough to cause oxygen deficiency, use a positive pressure self-contained breathing apparatus (SCBA). Follow all applicable respirator use, fitting, and training standards and regulations.

Ventilation - Provide general and/or local exhaust ventilation to control airborne levels of dust or fumes below exposure limits.

Exposure Guidelines - No permissible exposure limits (PEL) or threshold limits values (TLV) exist for steel. See section 2 for component materials. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

Section 9-Physical and Chemical Properties

Appearance and Odor – Metallic silver grey or darker grey with metallic luster. Blue if heat-treated, red if oxidized. Odorless.

Boiling Point – Not applicable

Melting Point – Approximately 2800°F

pH – Not applicable

Specific Gravity (at 15.6°C) – Not applicable

Density (at 15.6°C) – Not applicable

Vapor Pressure – Not applicable

Vapor Density (air=1) – Not applicable

% Volatile, by Volume – Not applicable

Solubility in Water – Insoluble

Evaporation Rate (Butyl Acetate = 1) – Not applicable

Other Physical and Chemical Data – None

Section 10-Stability and Reactivity

Stability – Stable

Conditions to Avoid – Steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume.

Hazardous Polymerization – Will not occur.

Incompatibility (Materials to Avoid) – Reacts with strong acids to form hydrogen gas. Do Not Store Near Strong Oxidizers.

Hazardous Decomposition Products – Metallic fumes may be produced during welding, burning, grinding, and possibly machining or any situation with the potential for thermal decomposition. Refer to ANSI Z49.1

Section 11-Toxicological Information

The primary component of this product is iron. Long-term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis. Symptoms may include chronic bronchitis, emphysema, and shortness of breath upon exertion. Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area.

Ingestion overexposures to iron may affect the gastrointestinal, nervous, and hematopoietic system and the liver. Iron and steel founding, but not iron or iron oxide, has been listed as potentially carcinogenic (Group 1) by IARC.

When this product is welded, fumes are generated. Welding fumes may be different in composition from the original welding product, with chief component being ordinary oxides of the metal being welded. Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals (see above), and welding fumes as a general category have been listed by IARC as a carcinogen (Group 2B). There is also limited evidence that welding fumes may cause adverse reproductive and fetal effects. Evidence is stronger where welding materials contain known reproductive toxins, e.g., lead which may be present in the coating material of this product.

Breathing fumes or dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron, and arsenic. The most common agents involved are zinc and copper.

This product may contain small amounts of manganese. Prolonged exposure to manganese dusts or fumes is associated with "manganism", a Parkinson-like syndrome characterized by a variety of neurological symptoms including muscle spasms, gait disturbances, tremors, and psychoses.

This product may contain small amounts of cadmium. Primary target organs for cadmium overexposure are the lungs and the kidney. Because of its cumulative nature, chronic cadmium poisoning can cause serious disease which takes many years to develop and may continue to progress despite cessation of exposure. Progression of the disease may not reflect current exposure conditions. It is also capable of causing a painful osteomalacia called "Itai-Itai" in postmenopausal women, and has caused developmental effects and/or reproductive effects in male and female animals. Cadmium is a listed carcinogen by NTP, OSHA, and IARC (Group 1).

This product may contain small amounts of chromium. Prolonged and repeated overexposure to chromium dusts or fumes may cause skin ulcers, nasal irritation and ulceration, kidney damage and cancer of the respiratory system. Chromium is a skin sensitizer. Cancer is generally attributed to the hexavalent (+6) form of chromium which is listed as a carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of nickel. Prolonged and repeated contact with nickel may cause sensitization dermatitis. Inhalation of nickel compounds has caused lung damage as well as sinus, nasal, and lung cancer in laboratory animals. Nickel is a listed carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of vanadium. Adverse effects from dermal, inhalation or parenteral exposure to various vanadium compounds have been reported. The major target for vanadium pentoxide toxicity is the respiratory tract. Fumes or dust can cause severe eye and respiratory irritation, and systemic effects. Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough, and tightness of the chest have been reported following overexposure. Allergic reactions resulting from skin and inhalation exposures have also been reported. A statistical association between vanadium air levels and lung cancer had been suggested, but vanadium currently is not regarded as a human carcinogen.

This product may contain small amounts of lead. Lead can accumulate in the body. Consequently exposure to fumes or dust may produce signs of polyneuritis, diminished vision and peripheral neuropathy, such as tingling and loss of feeling in fingers, arms and legs. Lead is a known reproductive and developmental toxin. It is also associated with central nervous system disorders, anemia, kidney dysfunction, and neurobehavioral abnormalities. The brain is a major target organ for lead exposure. Element lead is listed as an IARC 2B carcinogen.

The product may contain small amounts of copper. Copper dust and fume can irritate the eyes, nose and throat causing coughing, wheezing, nosebleeds, ulcers and metal fume fever. Other effects from repeated inhalation of copper fume include a metallic or sweet taste, and discoloration of skin, teeth, or hair. Copper also may cause an allergic skin reaction. Overexposure to copper can affect the liver.

Section 12-Ecological Information

Aquatic Eco-toxicological Data – No specific information available on this product.

Environmental Fate Data – No specific information available on this product.

Section 13-Disposal Considerations

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. Dispose in accordance with federal, state, and local health and environmental regulations. Prevent materials from entering drains, sewers, or waterways.

Section 14-Transport Information

DOT Proper Shipping Name – Not regulated

DOT Hazard Classification – Not regulated

UN/NA Number – Not applicable

DOT Packing Group – Not applicable

Labeling Requirements – Not applicable

Placards – Not applicable

DOT Hazard Substance – Not applicable

DOT Marine Pollutant – Not applicable

Section 15-Regulatory Information

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be combustible or hazardous and require protection to comply with applicable federal, state, and local laws and regulations.

California Proposition 65 - This product contains chemicals (antimony [oxide], arsenic, beryllium, chromium [hexavalent], cobalt, cadmium, lead, nickel) known to the State of California to cause cancer and chemicals (cadmium, lead) known to the State of California to cause birth defects or other reproductive harm.

Massachusetts Substance List – Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc.

Pennsylvania Hazardous Substance List – Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc.

New Jersey Hazardous Substance List - Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc.

Section 16-Other Information

Date of this Revision: December 2, 2016 (New SDS)

The information provided in this document is believed to be correct as of the date of preparation listed above. This SDS covers product as delivered from Malin Co., but does not include chemicals that may be applied by subsequent handlers and/or distributors of this product. This could include a variety of materials including oils, paints, galvanization, etc. that are not included in this SDS. SDS documents for any Malin Co. applied specialty coatings will be provided separately. The condition or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of this product.