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Revision Number 1

1. IDENTIFICATION

Product identification

Product identifier	Cronatron™ 345 Tool Steel Stick Rod Electrode
Other means of identification	CW1864
Recommended use	Electrode
Restrictions on use	Covered electrode for Shielded Metal Arc Welding (SMAW). These items are only intended for normal welding purposes.

Supplier

Corporate Headquarters:
Cronatron, A Lawson Brand
Lawson Products, Inc.
8770 W.Bryn Mawr Ave.- Suite 900
Chicago, IL 60631
1-866-529-7664

Canadian Distribution Center:
Lawson Canada
7315 Rapistan Court
Mississauga, ON L5N 5Z4
(800) 323-5922

24 Hour Emergency Phone Number (888) 426-4851 (Prosar)

2. HAZARD(S) IDENTIFICATION

Hazard Classification This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Symbol

Signal word Not applicable

Hazard statements Not applicable

Precautionary statements

General
P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children
P103 - Read label before use.

Prevention
P285 - In case of inadequate ventilation wear respiratory protection
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/protective clothing and eye/face protection
P260 - Do not breathe dust/fume/gas/mist/vapors/spray

Response

General	P314 - Get medical advice/attention if you feel unwell.
Storage	Not available
Disposal	P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable
Hazard(s) Not Otherwise Classified (HNOC)	None known.
Physical Hazards Not Otherwise Classified (PHNOC)	When this product is used in a welding process the most important hazards are: heat, radiation, electric shock and welding fumes.
Unknown acute toxicity	None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition Mixture.

Chemical name	CAS-No	Weight %
Iron	7439-89-6	40-70
Calcium Carbonate	1317-65-3	7-13
Calcium Fluoride	7789-75-5	5-10
Molybdenum	7439-98-7	3-7
Chromium	7440-47-3	3-7
Vanadium	7440-62-2	1-5
Tungsten	7440-33-7	1-5
Titanium dioxide	13463-67-7	1-5
Silicon	7440-21-3	1-5
Potassium Silicate	1312-76-1	1-5
Potassium Oxalate	6487-48-5	0.5-1.5
Carbon	7440-44-0	0.5-1.5
Silicon Dioxide (Crystalline Quartz)	14808-60-7	0.1-1
Manganese	7439-96-5	0.1-1

4. FIRST-AID MEASURES

Necessary first-aid measures

General Information	Call for medical aid. Employ First Aid techniques recommended by the Red Cross.
Inhalation	Remove to fresh air. If breathing is difficult, give oxygen. Administer artificial respiration if not breathing. If breathing has stopped, contact emergency medical services immediately.
Ingestion	Seek medical attention.
Skin contact	Wash affected area with soap and water to remove dust or particles. If rash develops, see a physician. For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist.
Eye contact	Flush with a large amount of fresh water for at least 15 minutes to remove dusts or fumes. For radiation burns due to arc flash, see physician.
Most important symptoms (acute)	Not available.

Most important symptoms (over-exposure) Not available.

Indication of any immediate medical attention and special treatment needed In case of ELECTRIC SHOCK: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live wire parts or wires. If breathing has stopped, begin artificial respiration and obtain medical assistance immediately. If no detectable pulse, begin Cardiopulmonary Resuscitation. (CPR) and immediately call for medical aid.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media Use the extinguishing media recommended for the burning material and fire situation.

Unsuitable extinguishing media Not available.

Specific hazards Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding. These products as shipped are non-hazardous, non-flammable, non-explosive, and non-reactive.

Special protective equipment for fire-fighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Reasonably expected fume constituents of the fume could include complex oxides of iron, chromium, manganese and nickel.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures Solid objects may be picked up and placed in a container. Make sure the solid objects are at room temperature before handling. Gloves should be worn when handling to prevent cuts.

Methods and materials for containment and cleaning up Do not flush residue into waterways.

7. HANDLING AND STORAGE

Precautions for safe handling Before using this product, contact your doctor to determine if exposure to this product or use of this product will aggravate your medical conditions. Handle with care to avoid cuts and prevent the wire from piercing the skin. Wear gloves. Some individuals may develop an allergic reaction to certain materials. Keep all warning and identification labels on the product. Avoid exposure to dust and do not ingest. Gloves should be worn when handling to prevent cuts. Warn wearers of heart pacemakers or other medical electronic equipment vital to life that welding operations may impede the function of the medical device. Handle with care to avoid damaging the product and keep product dry.

Conditions for safe storage, including any incompatibilities Keep material sealed and dry before use. After using, keep remaining product sealed and dry and do not remove product identification label or warning label. Do not remove product identification label or warning label.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	OSHA PEL (TWA)	ACGIH OEL (TWA)	NIOSH - TWA
Iron	-	-	-
Calcium Carbonate	15 mg/m ³ TWA	-	10 mg/m ³ TWA

Chemical name	OSHA PEL (TWA)	ACGIH OEL (TWA)	NIOSH - TWA
	5 mg/m ³ TWA		5 mg/m ³ TWA
Calcium Fluoride	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	-
Molybdenum	15 mg/m ³ TWA	10 mg/m ³ TWA 3 mg/m ³ TWA	-
Chromium	1 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA
Vanadium	0.5 mg/m ³ Ceiling 0.1 mg/m ³ Ceiling	-	3 mg/m ³ STEL 1 mg/m ³ TWA
Tungsten	-	3 mg/m ³ TWA	10 mg/m ³ STEL 5 mg/m ³ TWA 5 mg/m ³ TWA
Titanium dioxide	15 mg/m ³ TWA	10 mg/m ³ TWA	-
Silicon	15 mg/m ³ TWA 5 mg/m ³ TWA	-	10 mg/m ³ TWA 5 mg/m ³ TWA
Potassium Silicate	-	-	-
Potassium Oxalate	-	-	-
Carbon	-	-	-
Silicon Dioxide (Crystalline Quartz)	50 µg/m ³ TWA 50 µg/m ³ TWA	0.025 mg/m ³ TWA	0.05 mg/m ³ TWA
Manganese	5 mg/m ³ Ceiling	0.02 mg/m ³ TWA 0.1 mg/m ³ TWA	3 mg/m ³ STEL 1 mg/m ³ TWA 1 mg/m ³ TWA

Appropriate engineering controls

Adequate ventilation should be provided to keep exposure levels below current acceptable exposure limits. Read and understand the manufacturer's instructions and precautionary label on this product. Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the workers breathing zone and the general area. Train welder to keep head out of fumes. Monitor fume levels and do not exceed permissible exposure limits or values. Wear head, hand and body protection which help prevent injury from radiation, sparks, heat, and electrical shock. See ANSI Z49.1. When the electrode is consumed, the fume and gas decomposition products are different in percent and form from the ingredients listed in Section 3. Fume and decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction or oxidation of the wire or rod plus those from the base metal and coating. These components are virtually always present as complex oxides and not as metals. Reasonably expected fume constituents of the fume could include complex oxides of iron and chromium. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. The fume limit for Cr VI (5 micrograms/m³) may be reached before the ACGIH recommended general welding fume limit of 5 mg/m³ is reached. Monitor fume levels and Cr VI level. Train workers about the hazards of Cr (VI). Read and comply with the OSHA permissible exposure limits for hexavalent chromium (CrVI), Fed. Reg. 71 – 10099 (specifically 29 CFR 1910.1026, 29 CFR 1915.1026, and 29 CFR 1926.1126). For CrVI, OSHA requires: "The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area". Specialized equipment is required for monitoring Cr (VI) concentration in the workplace. OSHA Analytical Method Number ID-215 for area and breathing zone sampling and OSHA Analytical Method Number W4001 for wipe samples are listed on the OSHA website - www.osha.gov -as methods for measuring Cr(VI). This standard is complex and the employer should contact an occupational health professional for doing the Cr(VI) monitoring and all other fume monitoring. Exposure limits are subject to change. Contact ACGIH, OSHA, NIOSH, and IARC for current values.

Individual protection measures, such as personal protective equipment

Eye protection

Wear a helmet or face shield with a filter lens of shade 12 or darker. Provide screens and flash goggles to shield others.

Skin and body protection

Wear head, hand, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At a minimum, this includes welders' gloves and a

protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate themselves from work and ground, especially if clothing and gloves are wet.

Respiratory protection

Use respirable fume respirator or air supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below the TLV's. Monitor fume levels and do not exceed permissible exposure limits or values. One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet, if worn, or in the worker's breathing zone. See ANSI/AWS F1.1.

Hygiene measures

Do not eat, drink or smoke when using this product.

**Canadian Province Occupational
Exposure Limits**

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick - OEL	Newfoundl and & Labrador - OEL	Nova Scotia - OEL	Ontario OEL	Prince Edward Island - OEL	Quebec OEL	Saskatche wan - OEL
Iron	-	-	-	-	-	-	-	-	-	-
Calcium Carbonate	10 mg/m ³ TWA	20 mg/m ³ STEL 10 mg/m ³ TWA 3 mg/m ³ TWA	-	10 mg/m ³ TWA	-	-	-	-	10 mg/m ³ TWA EV	20 mg/m ³ STEL 10 mg/m ³ TWA
Calcium Fluoride	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA EV	5 mg/m ³ STEL 2.5 mg/m ³ TWA
Molybdenum	10 mg/m ³ TWA 3 mg/m ³ TWA	3 mg/m ³ TWA 10 mg/m ³ TWA 3 mg/m ³ TWA 10 mg/m ³ TWA	3 mg/m ³ TWA 10 mg/m ³ TWA	10 mg/m ³ TWA	3 mg/m ³ TWA 10 mg/m ³ TWA 3 mg/m ³ TWA 10 mg/m ³ TWA	3 mg/m ³ TWA 10 mg/m ³ TWA	10 mg/m ³ TWA 3 mg/m ³ TWA 10 mg/m ³ TWA 3 mg/m ³ TWA	3 mg/m ³ TWA 10 mg/m ³ TWA 3 mg/m ³ TWA 10 mg/m ³ TWA	10 mg/m ³ TWA EV	20 mg/m ³ STEL 6 mg/m ³ STEL 10 mg/m ³ TWA 3 mg/m ³ TWA 10 mg/m ³ TWA 3 mg/m ³ TWA
Chromium	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA EV	1.5 mg/m ³ STEL 0.5 mg/m ³ TWA
Vanadium	-	-	-	-	-	-	-	-	-	-
Tungsten	10 mg/m ³ STEL 5 mg/m ³ TWA	10 mg/m ³ STEL 5 mg/m ³ TWA 5 mg/m ³ TWA	3 mg/m ³ TWA	10 mg/m ³ STEL 5 mg/m ³ TWA	3 mg/m ³ TWA 3 mg/m ³ TWA	3 mg/m ³ TWA	10 mg/m ³ STEL 5 mg/m ³ TWA 5 mg/m ³ TWA	3 mg/m ³ TWA 3 mg/m ³ TWA	10 mg/m ³ STEL 5 mg/m ³ TWA EV	10 mg/m ³ STEL 5 mg/m ³ TWA 5 mg/m ³ TWA
Titanium dioxide	10 mg/m ³ TWA	10 mg/m ³ TWA 3 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWA EV	20 mg/m ³ STEL 10 mg/m ³ TWA
Silicon	-	10 mg/m ³ TWA 3 mg/m ³ TWA	-	10 mg/m ³ TWA	-	-	-	-	10 mg/m ³ TWA EV	20 mg/m ³ STEL 10 mg/m ³ TWA
Potassium Silicate	-	-	-	-	-	-	-	-	-	-
Potassium Oxalate	-	-	-	-	-	-	-	-	-	-
Carbon	-	-	-	-	-	-	-	-	-	-
Silicon Dioxide (Crystalline Quartz)	0.025 mg/m ³ TWA	0.025 mg/m ³ TWA	0.025 mg/m ³ TWA	0.1 mg/m ³ TWA	0.025 mg/m ³ TWA	0.025 mg/m ³ TWA	0.10 mg/m ³ TWA	0.025 mg/m ³ TWA	0.1 mg/m ³ TWA EV	0.05 mg/m ³ TWA

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick - OEL	Newfoundl and & Labrador - OEL	Nova Scotia - OEL	Ontario OEL	Prince Edward Island - OEL	Quebec OEL	Saskatche wan - OEL
Manganese	0.2 mg/m ³ TWA	0.2 mg/m ³ TWA 0.2 mg/m ³ TWA	0.02 mg/m ³ TWA 0.1 mg/m ³ TWA	0.2 mg/m ³ TWA	0.02 mg/m ³ TWA 0.1 mg/m ³ TWA 0.02 mg/m ³ TWA 0.1 mg/m ³ TWA	0.02 mg/m ³ TWA 0.1 mg/m ³ TWA	0.2 mg/m ³ TWA 0.02 mg/m ³ TWA 0.1 mg/m ³ TWA	0.02 mg/m ³ TWA 0.1 mg/m ³ TWA 0.02 mg/m ³ TWA 0.1 mg/m ³ TWA	0.2 mg/m ³ TWA 0.2 mg/m ³ TWA 0.2 mg/m ³ TWA	0.6 mg/m ³ STEL 0.2 mg/m ³ TWA 0.2 mg/m ³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid
Odor	None
Odor threshold	Not available
pH	Not applicable
Melting point/range °C	>1000
Melting point/range °F	>1800
Boiling point/range °C	Not available
Boiling point/range °F	Not available
Flash point °C / °F	Not available
Evaporation rate	Not available
Flammability (Solid, Gas)	Not available
Lower explosion limit	Not available
Upper explosion limit	Not available
Vapor pressure	Not applicable
Vapor density	Not available
Relative density	Not available
Solubility	Not available
Partition coefficient (n-octanol/water)	Not available
Autoignition temperature °C	Not available
Autoignition temperature °F	Not available
Decomposition temperature °C	Not available
Decomposition temperature °F	Not available

Viscosity Not available

10. STABILITY AND REACTIVITY

Reactivity Contact with chemical substances like acids or strong bases could cause generation of gas.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions Not available.

Conditions to avoid Not available.

Incompatible materials Contact with chemical substances like acids or strong bases could cause generation of gas.

Hazardous decomposition products Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. Refer to applicable national exposure limits for the fume compounds. Reasonably expected fume constituents of the fume could include complex oxides of iron, manganese, and chromium. The employer should contact an occupational health professional for doing fume monitoring to determine fumes emitted and to ensure compliance to the applicable country limits. A significant amount of the chromium in the fumes can be hexavalent chromium, which has a very low exposure limit in some countries. Manganese also has a low exposure limit in the USA. Other country exposure limits may be different and the appropriate country standards should be used.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure Dermal. Inhalation. Eyes.

Symptoms Welding fumes cannot be classified simply. Their composition and quantity are dependent upon the metal being welded, the process, procedures and electrodes being used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: Coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and the amount of ventilation, position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (group 2B). Pre-existing respiratory or allergic conditions may be aggravated in some individuals (i.e. asthma, emphysema). Overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat or eyes. Primary route of entry is the respiratory system. Iron, iron oxide, manganese: remove from overexposure and apply artificial respiration if needed. Inhalation of chromium can cause irritation of nasal membranes and skin. Fluoride compounds produced may cause eye and skin burns, and pulmonary edema bronchitis. Exposure to extremely high levels of fluorides can cause abdominal pain, diarrhea, muscular weakness, and convulsions. In extreme cases it can cause loss of consciousness and death. Ingestion not an expected route of entry, but if ingested product could cause serious injury. Arc Rays can injure eyes. Spatter and molten metal can cause burn injuries. Electric shock can kill. Skin cancer has been reported from arc radiation. May cause an allergic skin reaction. Warn wearers of heart pacemakers or other medical electronic equipment vital to life that welding operations may impede the function of the medical device.

Delayed and immediate effects as well as chronic effects from short and long-term exposure Long term exposure may lead to siderosis (iron deposits in lungs) and is believed by some investigators to affect pulmonary functions. Primary route of entry is the respiratory system. Long term overexposure to iron fumes can cause deposits of iron in the lungs (siderosis). Lungs will clear in time when exposure to iron and its compounds cease. Long term exposure can lead to Manganism. The central nervous system is affected and symptoms

include muscular weakness and tremor. Exposed workers should get quarterly medical examinations for manganism. Bronchitis and some lung fibrosis have been reported. Overexposure to fluorides can cause serious bone erosion, excessive calcification of the bone and calcification of the ribs, pelvis, and spinal column. May cause skin rash. Long term overexposure to hexavalent chromium (CrVI) is reported to cause lung cancer in humans.

Numerical measures of toxicity

Chemical name	Inhalation LC50:	Dermal LD50:	Oral LD50:
Iron	-	-	= 30 g/kg (Rat)
Calcium Carbonate	-	-	-
Calcium Fluoride	-	-	= 4250 mg/kg (Rat)
Molybdenum	-	-	-
Chromium	-	-	-
Vanadium	-	-	> 2000 mg/kg (Rat)
Tungsten	-	-	-
Titanium dioxide	-	-	> 10000 mg/kg (Rat)
Silicon	-	-	= 3160 mg/kg (Rat)
Potassium Silicate	-	-	= 5700 mg/kg (Rat)
Potassium Oxalate	-	-	= 660 mg/kg (Rat)
Carbon	-	-	> 10000 mg/kg (Rat)
Silicon Dioxide (Crystalline Quartz)	-	-	-
Manganese	-	-	= 9 g/kg (Rat)

ATEmix (dermal) Not available

ATEmix (oral) Not available

ATEmix (inhalation-gas) Not available

ATEmix (inhalation-vapor) Not available

ATEmix (inhalation-dust/mist) Not available

Carcinogenicity

Chemical name	ACGIH OEL - Carcinogens	IARC	OSHA RTK Carcinogens	NTP
Iron	-	-	-	-
Calcium Carbonate	-	-	-	-
Calcium Fluoride	A4	Group 3	-	-
Molybdenum	-	-	-	-
Chromium	A4	Group 3	-	-
Vanadium	-	-	-	-
Tungsten	-	-	-	-
Titanium dioxide	A4	Group 2B	Listed	-
Silicon	-	-	-	-
Potassium Silicate	-	-	-	-
Potassium Oxalate	-	-	-	-
Carbon	-	-	-	-
Silicon Dioxide (Crystalline Quartz)	A2	Group 1	Listed	Known
Manganese	A4	-	-	-

**Canadian Province
carcinogenicity limits**

Chemical name	Alberta - Carcinogen	British Columbia - Carcinogen	Manitoba - Carcinogen	New Brunswick - Carcinogen	Nova Scotia - Carcinogen	Quebec - Carcinogen
Iron	-	-	-	-	-	-
Calcium Carbonate	-	-	-	-	-	-
Calcium Fluoride	-	-	ACGIH A4	ACGIH A4	ACGIH A4	-
Molybdenum	-	-	-	-	-	-
Chromium	-	-	ACGIH A4	ACGIH A4	ACGIH A4	-
Vanadium	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-
Titanium dioxide	-	IARC 2B	ACGIH A4	ACGIH A4	ACGIH A4	-
Silicon	-	-	-	-	-	-
Potassium Silicate	-	-	-	-	-	-
Potassium Oxalate	-	-	-	-	-	-
Carbon	-	-	-	-	-	-
Silicon Dioxide (Crystalline Quartz)	A2 - Suspected Human Carcinogen	ACGIH A2 IARC 1	ACGIH A2	-	ACGIH A2	C2 carcinogen
Manganese	-	-	ACGIH A4	-	ACGIH A4	-

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish
Iron	-	13.6: 96 h <i>Morone saxatilis</i> mg/L LC50 static
Calcium Carbonate	-	-
Calcium Fluoride	-	-
Molybdenum	-	-
Chromium	-	-
Vanadium	-	-
Tungsten	-	-
Titanium dioxide	-	-
Silicon	-	-
Potassium Silicate	-	301 - 478: 96 h <i>Lepomis macrochirus</i> mg/L LC50 3185: 96 h <i>Brachydanio rerio</i> mg/L LC50 semi-static
Potassium Oxalate	-	-
Carbon	-	-
Silicon Dioxide (Crystalline Quartz)	-	-
Manganese	-	-

Persistence and degradability Not available.

Bioaccumulation

Chemical name	CAS-No	Partition coefficient (log Kow)
Iron 7439-89-6	7439-89-6	-

Chemical name	CAS-No	Partition coefficient (log Kow)
Calcium Carbonate 1317-65-3	1317-65-3	-
Calcium Fluoride 7789-75-5	7789-75-5	-
Molybdenum 7439-98-7	7439-98-7	-
Chromium 7440-47-3	7440-47-3	-
Vanadium 7440-62-2	7440-62-2	-
Tungsten 7440-33-7	7440-33-7	-
Titanium dioxide 13463-67-7	13463-67-7	-
Silicon 7440-21-3	7440-21-3	-
Potassium Silicate 1312-76-1	1312-76-1	-
Potassium Oxalate 6487-48-5	6487-48-5	-
Carbon 7440-44-0	7440-44-0	-
Silicon Dioxide (Crystalline Quartz) 14808-60-7	14808-60-7	-
Manganese 7439-96-5	7439-96-5	-

Mobility in soil

Not available.

Other adverse effects

Welding consumables and materials can degrade into the components used to manufacture the product. Avoid exposure to conditions that could lead to accumulation in soils and groundwater.

13. DISPOSAL CONSIDERATIONS

Disposal information

Dispose of any grinding dust and waste residues in accordance with EPA or local regulations. Plastic materials, cardboard, and wire can be recycled. Do not flush residue into waterways.

Contaminated packaging

Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORTATION INFORMATION

Shipping Descriptions

DOT

Proper shipping name Not regulated

TDG

Proper shipping name Not regulated

IATA

Proper shipping name Not regulated

IMDG/IMO

Proper shipping name Not regulated

Marine Pollutants

Chemical name	CAS-No	USDOT Marine Pollutant	Canada TDG Marine Pollutant	IMDG Marine Pollutant
Iron	7439-89-6	-	-	-
Calcium Carbonate	1317-65-3	-	-	-
Calcium Fluoride	7789-75-5	-	-	-
Molybdenum	7439-98-7	-	-	-
Chromium	7440-47-3	-	-	-
Vanadium	7440-62-2	-	-	-
Tungsten	7440-33-7	-	-	-
Titanium dioxide	13463-67-7	-	-	-
Silicon	7440-21-3	-	-	-
Potassium Silicate	1312-76-1	-	-	-
Potassium Oxalate	6487-48-5	-	-	-
Carbon	7440-44-0	-	-	-
Silicon Dioxide (Crystalline Quartz)	14808-60-7	-	-	-
Manganese	7439-96-5	-	-	-

15. REGULATORY INFORMATION

State regulations

U.S. state Right-to-Know regulations

Chemical name	CAS-No	Massachusetts - RTK	New Jersey - RTK	Pennsylvania - RTK
Iron	7439-89-6	-	-	-
Calcium Carbonate	1317-65-3	X	X	X
Calcium Fluoride	7789-75-5	-	X	-
Molybdenum	7439-98-7	X	X	X
Chromium	7440-47-3	X	X	X
Vanadium	7440-62-2	X	X	X
Tungsten	7440-33-7	X	X	X
Titanium dioxide	13463-67-7	X	X	X
Silicon	7440-21-3	X	X	X
Potassium Silicate	1312-76-1	-	-	-
Potassium Oxalate	6487-48-5	-	-	-
Carbon	7440-44-0	-	-	-
Silicon Dioxide (Crystalline Quartz)	14808-60-7	X	X	X
Manganese	7439-96-5	X	X	X

California Prop. 65

Chemical name	CAS-No	California Prop. 65
Iron	7439-89-6	-
Calcium Carbonate	1317-65-3	-
Calcium Fluoride	7789-75-5	-
Molybdenum	7439-98-7	-
Chromium	7440-47-3	-
Vanadium	7440-62-2	-
Tungsten	7440-33-7	-

Chemical name	CAS-No	California Prop. 65
Titanium dioxide	13463-67-7	Carcinogen
Silicon	7440-21-3	-
Potassium Silicate	1312-76-1	-
Potassium Oxalate	6487-48-5	-
Carbon	7440-44-0	-
Silicon Dioxide (Crystalline Quartz)	14808-60-7	Carcinogen
Manganese	7439-96-5	-

California Proposition 65

This product contains chemicals known to the state of California to cause cancer:

U.S. Federal Regulations

RCRA - D Series Wastes

Some unused product may contain chromium which is considered hazardous waste if discarded, RCRA ID characteristic Toxic Hazardous Waste D007. Other ingredients in this product may be considered "hazardous material" in other countries and they may require special disposal methods. Contact your local municipality for the proper disposal method. Residues from welding consumables and processes could degrade and accumulate in groundwater. Welding slag from these products could typically contain the following components from the coating of the electrode: Ni, Fe, Cr, Mn, F, Na, Si, and Ca

US EPA SARA 313

Chemical name	CAS-No	CERCLA/SARA Hazardous Substances RQ	SARA 313 - Threshold Values
Iron	7439-89-6	-	-
Calcium Carbonate	1317-65-3	-	-
Calcium Fluoride	7789-75-5	-	-
Molybdenum	7439-98-7	-	-
Chromium	7440-47-3	5000 lb 2270 kg 10 lb 4.54 kg	1.0 %
Vanadium	7440-62-2	-	1.0 %
Tungsten	7440-33-7	-	-
Titanium dioxide	13463-67-7	-	-
Silicon	7440-21-3	-	-
Potassium Silicate	1312-76-1	-	-
Potassium Oxalate	6487-48-5	-	-
Carbon	7440-44-0	-	-
Silicon Dioxide (Crystalline Quartz)	14808-60-7	-	-
Manganese	7439-96-5	-	1.0 %

US EPA SARA 311/312 hazardous categorization

Not available

International inventories

All components of this product are listed on the following inventories: U.S.A. (TSCA 8(b)), Canada (DSL/NDSL) or are exempt.

Chemical name	DSL/NDSL	Inventory - United States - Section 8(b) Inventory (TSCA)	U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification
Iron	X	X	-
Calcium Carbonate	X	X	-
Calcium Fluoride	X	X	-
Molybdenum	X	X	-

Chemical name	DSL/NDSL	Inventory - United States - Section 8(b) Inventory (TSCA)	U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification
Chromium	X	X	-
Vanadium	X	X	-
Tungsten	X	X	-
Titanium dioxide	X	X	-
Silicon	X	X	-
Potassium Silicate	X	X	-
Potassium Oxalate	X	X	-
Carbon	X	X	-
Silicon Dioxide (Crystalline Quartz)	X	X	-
Manganese	X	X	-

Legend X - Listed

16. OTHER INFORMATION

NFPA

Health	2
Flammability	0
Instability	0

HMIS

Health	2
Flammability	0
Physical hazards	0

Notice: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA).

Prepared by Regulatory Affairs

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Revision note

Key to abbreviations

ACGIH (American Conference of Governmental Industrial Hygienists)
 ATE (Average Toxicity Estimate)
 DSL/NDSL (Domestic Substance List/Non-Domestic Substance List)
 HMIS (Hazardous Materials Identification System)
 IARC (International Agency for Research on Cancer)
 IATA (International Air Transport Association)
 IMDG/IMO (International Maritime Dangerous Goods/International Maritime Organization)
 NFPA (National Fire Protection Association)
 NTP (National Toxicology Program)
 OEL (Occupational Exposure Level)
 OSHA (Occupational Safety and Health Administration of the US Department of Labor)
 PEL (Permissible Exposure Limit)
 TSCA (Toxic Substance Control Act)
 USEPA (United States Environmental Protection Agency)

Disclaimer

The information accumulated herein is believed to be accurate, but is not warranted to be, whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

End of Safety Data Sheet