



Material Safety Data Sheet

Revision Date 28-Sep-2015

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product code CW1032
Product name CRONACAST 211
Recommended Use Welding Alloy

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

Emergency telephone number (888) 426-4851

2. HAZARDS IDENTIFICATION

Emergency Overview

Hazardous fumes are generated by welding, soldering or brazing. Exposure to welding related processes, materials, fumes or gases might be linked to certain neurological and physical disorders and cancer. Protect yourself and others at all times. A NIOSH approved, proper fitting and well-maintained respirator should be worn at all times while using this product. Keep your head out of the fumes and gases. Use adequate ventilation and/or exhaust to keep fumes and gases from your breathing zone and the general area. Keep others without proper respiratory protection away from the fumes and gases and your work zone while using this product.

Aggravated Medical Conditions

Asthma like conditions.

Principal Routes of Exposure

Inhalation of welding fumes. Eyes. Skin contact.

General Welding Statement

Fumes and gases can be dangerous to your health. Heat rays (Infrared Radiation) from flame or hot metal can injure eyes. Arc Rays can injure eyes and burn skin. Electric shock can kill. For electric shock, disconnect and turn off the power. Train the welder not to touch live electrical parts and to insulate himself from work and ground. The ACGIH and OSHA have set the exposure level for welding fumes at 5 mg/m³. Some gaseous products from the welding process such as chromium and/or nickel can reach their PEL before the General Exposure Limit of 5 mg/ cu.m for welding fumes is reached. Warn wearers of heart pacemakers or other medical electronic equipment vital to life that welding operations may impede the function of the medical device.

Potential health effects

Eyes Irritation. Itching. Redness. Tearing.

Skin

Skin Irritation. Skin burns. Ultraviolet radiation from welding can cause flash burns.

Inhalation

Short term overexposure to welding fumes may result in dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Long term exposure may lead to iron deposits in the lungs and is believed by some investigators to affect pulmonary function. Research indicates that amorphous silica is present in welding fumes. Long term exposure may cause pneumoconiosis. Non-crystalline form of silica (amorphous) are considered to have little fibrotic potential. Repeated or prolonged exposure to respirable crystalline silica may cause chronic lung injury (silicosis). Fluoride compounds produced may cause eye and skin burns, pulmonary edema bronchitis. Chronic fluoride absorption can result in osseous fluorosis, increased radiographic density of the bones and mottling of teeth. 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. Long term overexposure to nickel compounds may cause lung fibrosis, edema or pneumoconiosis.

Ingestion

May be harmful if swallowed.

3. COMPOSITION / INFORMATION ON INGREDIENTS

The fumes and gases produced when welding with normal use of these products are covered in section 10.

Chemical Name	CAS-No	Weight %
Nickel	7440-02-0	> 40
Iron	7439-89-6	35-45
Strontium Carbonate	1633-05-2	6-12
Silicate Binders	Mixture	1-3
Graphite	7782-42-5	1-3
Calcium Fluoride	14542-23-5	1-3
Aluminum	7429-90-5	1-3
Manganese	7439-96-5	0.3-1
Organic Extrusion Aids	Mixture	< 1
Silicon	7440-21-3	< 0.5
Silicon Dioxide (Crystalline Quartz)	14808-60-7	< 0.5
Calcium Carbonate	1317-65-3	< 0.5
Barium carbonate	513-77-9	< 0.5

4. FIRST AID MEASURES

General advice	Employ First Aid techniques recommended by the Red Cross. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR).
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Skin contact	Wash off immediately with soap and plenty of water.
Ingestion	Do not induce vomiting. Call a physician or Poison Control Center immediately.
Inhalation	Move to fresh air. Seek medical attention if irritation persists. Oxygen or artificial respiration if needed.

5. FIRE FIGHTING MEASURES

Flash point °C	None
Flash point °F	None
Method	No information available
Autoignition temperature °C	Not Applicable
Autoignition temperature °F	Not Applicable
Flammability Limits (% in Air)	
Upper	No data available
Lower	No data available

Suitable extinguishing media

Carbon dioxide (CO₂). Dry chemical. Foam. Carbon dioxide.

Special protective equipment for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Fire and Explosion Hazards

Product is nonflammable and nonexplosive under normal conditions of use. Welding arcs and sparks can ignite combustibles.

Sensitivity to shock

No information available.

Sensitivity to static discharge

No information available.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions

Do not allow material to contaminate ground water system.

Methods for cleaning up

Collect and contain for disposal.

7. HANDLING AND STORAGE

Handling

Refer to American National Standard Z49.1 for fire prevention during welding. Avoid spontaneous combustion of contaminated rags or other ignitable material.

Storage

Keep in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	OSHA PEL (TWA)	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
Nickel	1 mg/m ³	-	0.2 mg/m ³ inhalable fraction	-
Iron	-	-	5.0 mg/m ³ as iron oxide respirable fraction	-
Strontium Carbonate	-	-	-	-
Calcium Fluoride	-	-	-	-
Aluminum	15 mg/m ³ 5 mg/m ³	-	1 mg/m ³	-
Graphite	15 mg/m ³ 5 mg/m ³	-	2 mg/m ³	-
Silicate Binders	-	-	-	-
Manganese	-	5 mg/m ³	0.02 mg/m ³ 0.1 mg/m ³	-
Organic Extrusion Aids	-	-	-	-
Silicon	15 mg/m ³ 5 mg/m ³	-	-	-
Calcium Carbonate	15 mg/m ³ 5 mg/m ³	-	-	-
Silicon Dioxide (Crystalline Quartz)	-	-	0.025 mg/m ³	-
Barium carbonate	-	-	-	-

Ventilation and Environmental Controls

Use enough ventilation, local exhaust at the work area, general, or both, to keep below the TLV's in the worker's breathing zone and the general area. Sufficient ventilation in volume and in pattern, should be provided to keep air contamination below current applicable OSHA PEL or ACGIH OEL limits.

Hygiene measures

Wash hands after handling the product.

Respiratory protection

Use respirable fume respirator (P100) or supplied air when welding in confined spaces, or where local exhaust does not keep the exposure below TLV. Protection provided by air purifying respirators is limited. Use a positive pressure supplied air respirator, if there is any potential for an uncontrolled release. where exposure levels are not known, or other circumstances where an air purifying respirator (P100) may not provide adequate protection.

Hand Protection

Leather gloves.

Eye protection

Wear helmet or face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the work area. Then go to the next lighter shade which gives sufficient view of the work area. Provide protective screens and flash goggles, if necessary, to shield others.

Hearing Protection

Ear plugs should be worn

Skin and body protection

Sufficient to provide protection from radiation, heat, sparks and

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Solid
Color	Silver Red Yellow
Odor	None
Odor Threshold	No information available
pH	No data available
Specific Gravity	7.4 - 9.0
Vapor pressure	No data available
Vapor density	No data available
Evaporation Rate	No data available
Water solubility	No data available
Partition Coefficient (n-octanol/water)	No data available
Boiling point/range °C	No data available
Boiling point/range °F	No data available
Melting point/range °C	No data available
Melting point/range °F	No data available
Flash point °C	None
Flash point °F	None

10. STABILITY AND REACTIVITY

Stability
Stable.

Conditions to avoid
No information available.

Incompatibility
Acids.

Hazardous Decomposition Products
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), number of welders and volume of work area. The amount and type of ventilation, the position of the welder's head with respect to the fume plume. Contaminants in the atmosphere such as chlorinated hydrocarbon vapors from cleaning and degreasing operations. When the electrode is consumed, the fume and gas decomposition products are different in percent and form from the ingredients listed in Section 3. New compounds not in the electrodes may form during use. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Decomposition products include those originating from the volatilization, reaction or oxidation of the wire or rod plus those from the base metal and coating. Reasonably expected decomposition products from normal use of these products include the oxides of the material listed in the ingredients section, as well as carbon monoxide, carbon dioxide, ozone and nitrogen oxides. 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.

Polymerization
Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Component Information

Chemical Name	LD50 (oral,rat)	LD50 (dermal,rat/rabbit)	LC50 (inhalation,rat)
<i>Nickel</i> 7440-02-0	9000 mg/kg	-	-
<i>Iron</i> 7439-89-6	984 mg/kg	-	-
<i>Strontium Carbonate</i> 1633-05-2	-	-	-
<i>Calcium Fluoride</i> 14542-23-5	4250 mg/kg	-	-
<i>Aluminum</i> 7429-90-5	-	-	-
<i>Graphite</i> 7782-42-5	10000 mg/kg	-	-
<i>Silicate Binders Mixture</i>	-	-	-
<i>Manganese</i> 7439-96-5	9 g/kg	-	-
<i>Organic Extrusion Aids Mixture</i>	-	-	-
<i>Silicon</i> 7440-21-3	3160 mg/kg	-	-
<i>Calcium Carbonate</i> 1317-65-3	-	-	-
<i>Silicon Dioxide (Crystalline Quartz)</i> 14808-60-7	500 mg/kg	-	-
<i>Barium carbonate</i> 513-77-9	418 mg/kg	-	-

Synergistic Products None known.

Specific Hazards Copper dust and fume affect the respiratory system, lungs, skin, liver and eyes. 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. The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified) is 5 mg/M3.

Potential health effects

Sensitization None known.

Chronic toxicity See Section 2.

Mutagenic effects None known.

Teratogenic effects None known.

Reproductive toxicity None known.

Target Organ Effects See Section 2.

Other adverse effects Initial symptoms of metal fume fever can include sweating, shivering, headache, fever, chills, thirstiness, muscle and joint aches, nausea, vomiting, weakness, tiredness and a blue tinge to the skin.

Carcinogenic effects Welding fumes must be considered as possible carcinogens under OSHA 29 CFR 1910.1200.

Chemical Name	ACGIH OEL - Carcinogens	IARC	NTP - Known Carcinogens	NTP - Suspected Human Carcinogens	OSHA RTK Carcinogens
Nickel	A5 - Not Suspected as a Human Carcinogen	Group 1 Group 2B	NTP-K	NTP-R	Listed
Iron	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Strontium Carbonate	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Silicate Binders	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Graphite	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Calcium Fluoride	Not Listed	Group 3	Not Listed	Not Listed	Not Listed
Aluminum	A4 - Not Classifiable as a Human Carcinogen	Not Listed	Not Listed	Not Listed	Not Listed
Manganese	A4 - Not Classifiable as a Human Carcinogen	Not Listed	Not Listed	Not Listed	Not Listed
Organic Extrusion Aids	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Silicon	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Silicon Dioxide (Crystalline Quartz)	A2 - Suspected Human Carcinogen	Group 1	NTP-K	Not Listed	Listed

Calcium Carbonate	Not Listed				
Barium carbonate	Not Listed				

12. ECOLOGICAL INFORMATION

Nickel
Water Flea Data
1: 48 h Daphnia magna mg/L EC50 Static 100: 48 h Daphnia magna mg/L EC50

13. DISPOSAL CONSIDERATIONS

Disposal Information
Material should be recycled if at all possible.

Waste from residues / unused products
Dispose of all product, residues and clean-up materials in accordance with local, state, and federal regulations.

14. TRANSPORTATION INFORMATION

DOT
Not Regulated

TDG
Not Regulated

15. REGULATORY INFORMATION

US EPA SARA 313

Chemical Name	US EPA SARA 313 Emission Reporting
Nickel	Listed
Aluminum	Listed
Manganese	Listed
Barium carbonate	Listed

State Regulations

Chemical Name	New Jersey - RTK	Pennsylvania - RTK	California Prop. 65
Nickel	Listed	Listed	Carcinogen
Iron	Not Listed	Not Listed	Not Listed
Strontium Carbonate	Not Listed	Not Listed	Not Listed
Silicate Binders	Not Listed	Not Listed	Not Listed
Graphite	Not Listed	Listed	Not Listed
Calcium Fluoride	Not Listed	Not Listed	Not Listed
Aluminum	Listed	Listed	Not Listed
Manganese	Not Listed	Listed	Not Listed
Organic Extrusion Aids	Not Listed	Not Listed	Not Listed
Silicon	Not Listed	Listed	Not Listed

Silicon Dioxide (Crystalline Quartz)	Not Listed	Listed	Carcinogen
Calcium Carbonate	Not Listed	Listed	Not Listed
Barium carbonate	Listed	Listed	Not Listed

WARNING: This product contains a chemical(s) known to the state of California to cause cancer and birth defects or other reproductive harm

International Inventories

Chemical Name	EINECS	DSL	NDSL	TSCA	Nickel
X	X	-	X	Iron	X
X	-	X	Strontium Carbonate	X	X
-	X	Silicate Binders	-	-	-
-	Graphite	X	X	-	X
Calcium Fluoride	X	-	X	X	Aluminum
X	X	-	X	Manganese	X
X	-	X	Organic Extrusion Aids	-	-
-	-	Silicon	X	X	-
X	Silicon Dioxide (Crystalline Quartz)	X	X	-	X
Calcium Carbonate	X	-	X	X	Barium carbonate
X	X	-	X		

CPR

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all of the information required by the Controlled Product Regulations.

16. OTHER INFORMATION

NFPA

Health - 3
Flammability - 0
Reactivity - 0

Prepared By V. Shargorodsky, Regulatory Affairs Engineer

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.