

## SAFETY DATA SHEET

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200 AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499. STANDARD SHOULD BE CONSULTED FOR SPECIFIC REQUIREMENTS.

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**NAME OF PRODUCT:** MG: 200, 210, 220, 240, 250, 260, 289

**MANUFACTURER/  
SUPPLIER:** MESSER – MG WELDING PRODUCTS  
N94 W14355 GARWIN MACE DRIVE  
MENOMONEE FALLS, WI 53051 USA

**TELEPHONE NUMBER** (262) 532-4677  
**FAX NUMBER:** (262) 255-5542

**MG WELDING WEBSITE:** [www.messerwelding.com](http://www.messerwelding.com)

**PRODUCT CLASSIFICATION:** Covered Electrodes for Shielded Metal Arc Welding (SMAW)  
MG 240 is a bare filler metal for brazing.

### SECTION 2: HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Welding electrodes are not normally considered hazardous as shipped or when handled. Gloves should be worn when handling to prevent cuts. Avoid inhalation of dust from these products. Skin contact may cause possible allergic reactions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the pacemaker device. When this product is used in a welding process the most important hazards are: heat, radiation, electric shock, and welding fumes.

**ROUTES OF ENTRY:**

Primary route of entry is the respiratory system. Other possible routes are eyes and/or skin contact.

**POTENTIAL HEALTH EFFECTS:**

**EYES:** RADIATION: Arc rays from welding can injure eyes. HEAT and MOLTEN METAL can severely damage eyes.

**SKIN:** HEAT: Spatter and molten metal can cause burn injuries  
ELECTRICITY: **Electric shock can kill!**  
RADIATION from the arc: Skin cancer has been reported.

**INGESTION:** Not an expected route of entry, but if ingested product could cause serious injury.

**INHALATION:** FUMES: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness of the nose, throat or eyes.

**ACUTE HEALTH HAZARDS:** See Section 11

**CHRONIC HEALTH HAZARDS:** See Section 11

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** Nothing found.

**WARNING:** This product contains or produces a chemical known to the State of California to cause birth defects (or other reproductive harm) and cancer. (California Health & Safety Code 25249.5 *et seq.*)

**WARNING:** avoid breathing welding fumes and gases; they may dangerous to your health. Always use adequate ventilation and use appropriate personal protection equipment.

**CARCINOGENICITY:**

**NICKEL** - is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**MANGANESE** is listed by ACGIH as Group A4: Not classifiable as a human carcinogen

**SILICON DIOXIDE** - is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**WELDING FUMES** (not otherwise specified) are considered to be carcinogenic defined with no further categorization by *NIOSH* and *IARC*.

**Package Labeling:**

Although this product does not require a hazard warning label in all countries, we recommend that the safety advice should be observed:

**Pictograms: GHS07- GHS08**



**MG 200, MG 210, MG 250, MG 260 contains Nickel and Barium Carbonate**  
**MG 240 and MG 289 contains Nickel**

**Pictogram: GHS07 for MG 220 – Contains Barium Carbonate**



**R-Phrases:**

Limited evidence of carcinogenic effect

May cause sensitization by skin contact

Toxic: danger of serious damage to health by prolonged exposure through inhalation

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Brazing/welding fumes and vapors may cause metal fume fever (headache, dizziness, dryness, cough, nausea, and fever) and these symptoms may appear 4-12 hours after exposure

May cause irritation by prolonged inhalation of brazing/welding fumes.

**GHS: Nickel – if listed in Section 3**

Hazard categories:

Respiratory/skin sensitization: Skin Sens: 1

Carcinogenicity: Carc. 2

Specific target organ toxicity – repeated exposure: STOT RE 1

May cause an allergic skin reaction.

Suspected of causing cancer.

Causes damage to organs through prolonged or repeated exposure.

**GHS: Barium Carbonate - if listed in Section 3**

Harmful if swallowed

**Hazard Statements: Nickel**

- H317 May cause an allergic skin reaction
- H351 Suspected of causing cancer
- H372 Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements:**

- P285 In case of inadequate ventilation wear respiratory protection
- P314 Get medical advice if you do not feel well
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P202 Do not handle until all safety precautions have been read and understood
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P501 Dispose of contents/container to waste treatment facility in accordance with local and national regulations

Before using this product, contact your doctor to determine if exposure to product or use of this product will aggravate your medical conditions.

**ADDITIONAL LABELING INFORMATION**

As an article the product does not need to be labeled in accordance with EC-directives or respective national laws. Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label according to this Annex (Annex I GHS), if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the criteria of this Annex.

Instead, the supplier shall provide the information to downstream users or distributors by means of the SDS.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**IMPORTANT:** This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered in Section 8. The chemicals or compounds subject to reporting under Title III, in Section 313, of the Superfund Amendments and Reauthorization Act (SARA) are marked by the symbol #.

INGREDIENTS	CAS NUMBER	Exposure Limit (mg/m <sup>3</sup> )		Percent Ingredients (by weight)						
		OSHA PEL	ACGIH-TLV	MG 200	MG 210	MG 220	MG 240	MG 250	MG 260	MG 289
Nickel #	7440-02-0	1	0.2	L	J		C	L	J	J
Iron	7439-89-6	10 (as Fe)	5 (as Fe)	C	H	L	L	C	H	H
Calcium Carbonate	1317-65-3	5	10	E	D	E		D	E	C
Barium Carbonate #	513-77-9	0.5 (as Ba)	0.5 (as Ba)	E	F	E		E	F	
Graphite	7782-42-5	15 mppcf*	2	C	C	C		C	C	C
Mica	12001-26-2	20 mppcf*	3	C						
Sodium Silicate	1344-09-8	Not listed	Not listed	C	C	C		C	C	C
Potassium Silicate	1312-76-1	Not listed	Not listed	C	C			C		
Calcium Fluoride	7789-75-5	2.5 (as F)	2.5 (as F)	C	C	E		C	C	C
Silicon	7440-21-3	5	10				C			
Iron Oxide	1317-61-9	10 (as Fe)	5 (as Fe)	C	C				C	C
Manganese #	7439-96-5	5 (ceiling)	0.1			B	A			
Aluminum #	7429-90-5	10	5				A			
Carbon	7440-44-0	5	2				C			
Strontium Carbonate	1633-05-2	Not listed	Not listed							E
Silicon Dioxide	14808-60-7	**	0.05	A					A	

\*mppcf = millions of particles per cubic foot of air

\*\* 10 mg/m<sup>3</sup> / (% SiO<sub>2</sub> + 2)

**PERCENT RANGE CODE (by Weight):**

- A = 0.1 - 1%      C = 1 - 5%      E = 5 - 10%      G = 10 - 30%      J = 30 - 60%      L = 60 - 100
- B = 0.5 - 1.5%      D = 3 - 7%      F = 7 - 13%      H = 15 - 40%      K = 40 - 70%

**CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS IF PRESENT**

<b>INGREDIENTS</b>	<b>CAS NUMBER</b>	<b>EINECS NUMBER</b>	<b>Hazard Classification per ECD 67/548/EEC</b>
Nickel #	7440-02-0	231-111-4	Carc. Cat. 3; R40 - T; R48/23 - R43
Iron	7439-89-6	231-096-4	No
Calcium Carbonate	1317-65-3	215-279-6	No
Barium Carbonate #	513-77-9	208-167-3	Xn; R22
Graphite	7782-42-5	231-955-3	No
Mica	12001-26-2	310-127-6	No
Sodium Silicate	1344-09-8	215-687-4	No
Potassium Silicate	1312-76-1	215-199-1	No
Calcium Fluoride	7789-75-5	232-188-7	No
Silicon	7440-21-3	232-188-7	No
Iron Oxide	1317-61-9	215-277-5	No
Manganese #	7439-96-5	231-105-1	No
Aluminum #	7429-90-5	231-072-3	No (flux coating component)
Carbon	7440-44-0	231-153-3	No
Strontium Carbonate	1633-05-2	216-643-7	No
Silicon Dioxide	14808-60-7	238-878-4	No

Exposure limits are subject to change. Contact ACGIH and OSHA for current values. See Section 16 for European Council Directive 67/548/EEC R-phrases and S-phrases if applicable.

**SECTION 4: FIRST AID MEASURES**

**EMERGENCY & FIRST AID PROCEDURES:** Call for medical aid. Employ first aid techniques recommended by The American Red Cross.

**EYES:** Flush with a large amount of fresh water for at least 15 minutes to remove dusts or fumes. Get medical attention. For radiation burns due to arc flash, see physician.

**SKIN:** 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 for irritations that persist.

**INGESTION:** Seek medical attention.

**INHALATION:** Remove to fresh air. If breathing is difficult administer oxygen. If breathing has stopped, begin artificial respiration and obtain medical assistance immediately.

**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.

**GENERAL:** Move to fresh air and call for medical aid.

**SECTION 5: FIRE FIGHTING MEASURES**

**Non-Flammable:** 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, nonflammable, non-explosive, and non-reactive.

**FLAMMABLE LIMITS IN AIR (% by volume): UPPER: N/A LOWER:N/A**

**FLASH POINT: N/A**

**AUTOIGNITION TEMPERATURE: N/A**

**NFPA HAZARD CLASSIFICATION:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Other:

**RATING UNDER NATIONAL FIRE PROTECTION 704:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Protection:

**EXTINGUISHING MEDIA:** Use the extinguishing media recommended for the burning material and fire situation.

**SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained breathing apparatus as fume or vapors may be harmful.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None

**HAZARDOUS DECOMPOSITION PRODUCTS:** Reasonably expected fume constituents of the fume could include complex oxides of iron and nickel.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**ACCIDENTAL RELEASE MEASURES:** Solid objects may be picked up and placed in a container. Wear protective clothing and make sure that the solid objects are at room temperature before handling.

**PERSONAL PRECAUTIONS:** Gloves should be worn when handling to prevent cuts.

**ENVIRONMENTAL PRECAUTIONS:** Do not flush residue into waterways.

**SECTION 7: HANDLING AND STORAGE**

**HANDLING:** Handle with care to avoid cuts and to keep the wire from piercing the skin. Wear gloves when handling welding consumables. Avoid exposure to dust and do not ingest. Some individuals can develop and allergic reaction to certain materials. Keep all warning labels and identification labels on the product.

**STORAGE:** Keep material sealed and dry before use and do not remove product identification label or warning label. After using, keep remaining product sealed and dry and do not remove product identification label or warning label.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**



**Read and understand the manufacturer's instructions and precautionary label on this product.**

Always use adequate ventilation and wear appropriate personal protection. Do not breathe welding fumes and gases; they are dangerous to your health.

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more detail on the following:

**ENGINEERING CONTROLS:** Proper ventilation must be maintained.

**ARC RAYS** and **SPARKS** can injure eyes and burn skin.

**ELECTRIC SHOCK** can kill! Wear correct hand, eye, head, and body protection.

**VENTILATION:** 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 the welder to keep their head out of the fumes. Monitor fume levels and do not exceed permissible exposure limits or values.

**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.

**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. When using MG 240, wear appropriate brazing goggles.

**PROTECTIVE CLOTHING:** 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.

**WORK HYGIENIC PRACTICES:** Do not eat or consume beverages in the work area.

**EXPOSURE GUIDELINES:** Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. When the electrode is consumed, fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. The fume and decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of materials in Section 3, plus those from the base metal, etc., as noted above. These components are virtually always present as complex oxides and not as metals (Characterization of Arc Welding Fume: American Welding Society). Reasonably expected fume constituents of the fume could include complex oxides of iron and nickel. The following limits can be used as guidance. Refer to Section 11 for more information about welding fumes.

<u>SUBSTANCE</u>	<u>CAS NUMBER</u>	<u>Exposure Limit (mg/m<sup>3</sup>)</u>	
		<u>OSHA PEL</u>	<u>ACGIH-TLV</u>
Iron Oxide	1309-37-1	10 (as Fe)	5 (as Fe)
Nitric Oxide	10102-43-9	30	31
Nickel Oxide #	1313-99-1	1 (as Ni)	0.2 (as Ni)
Manganese fume #	7439-96-5	5	0.02

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. Monitor fume levels. One recommended way to determine the composition and quantity of fumes and gas 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, F1.2, F1.3, F1.4, and F1.5, available from the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126).

Exposure limits are subject to change. Contact ACGIH, OSHA, NIOSH, and IARC for current values.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Solid appearance, non volatile, wire with a flux coating. No odor. Not soluble in water.

**MELTING POINT:** > 1800 °F (> 1000 °C)

## SECTION 10: STABILITY AND REACTIVITY

**GENERAL:** These items are only intended for normal welding purposes.

**STABILITY:** Stable under normal conditions.

**HAZARDOUS POLYMERIZATION:** Will not occur

**REACTIVITY:** Contact with chemical substances like acids or strong bases could cause generation of gas.

#### **HAZARDOUS DECOMPOSITION OR BY-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 and nickel. 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.

Manganese also has a low exposure limit listed in the USA. Other country exposure limits may be different and the appropriate country standards should be used.

### **SECTION 11: TOXICOLOGICAL INFORMATION**

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure, and the electrode 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).

**EFFECTS OF OVEREXPOSURE** - Electric arc welding may create one or more of the following health hazards:

**FUMES AND GASES** can be dangerous to your health.

**PRIMARY ROUTES OF ENTRY** are the respiratory system. Other possible routes are eyes and/or skin contact.

**PREEXISTING** respiratory or allergic conditions may be aggravated in some individuals (i.e. asthma, emphysema).

**SHORT TERM (ACUTE) 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. **FLUORIDES** - 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. **NICKEL, NICKEL OXIDE** - May cause metallic taste, nausea, tightness in chest, fever, and allergic reactions.

**LONG TERM (CHRONIC) OVEREXPOSURE** 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. **IRON, IRON OXIDE** - 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. **MANGANESE** - Long term exposure may lead to "Manganism." Central nervous system is affected and symptoms include muscular weakness, impaired speech, impaired movement, and tremors. Exposed workers should get quarterly medical examinations for manganism. Bronchitis and some lung fibrosis have been reported. **FLUORIDES** - 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. **NICKEL, NICKEL OXIDE** - Long term overexposure to nickel products may cause lung fibrosis or pneumoconiosis.

Monitor fume levels and do not exceed permissible limits.

**SECTION 12: ECOLOGICAL INFORMATION**

**MATERIAL:** 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.

**CONTAMINATED PACKAGING:** Empty containers should be taken for local recycling, recovery, or waste disposal. Metals may be recycled.

**SECTION 13: DISPOSAL CONSIDERATION**

**WASTE DISPOSAL METHOD:** Dispose of any grinding dust and waste residues in accordance with EPA or local regulations. Plastic materials, cardboard, and wire can be re-cycled.

**U.S.A. RCRA:** Some unused 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, Sr, Mn, F, Na, Si, Ca, and C.

**SECTION 14: TRANSPORTATION INFORMATION**

**DOMESTIC TRANSPORT REGULATIONS (USA):** DOT - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (CANADA):** TDG - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (MEXICO):** MEX - not regulated.

**INTERNATIONAL TRANSPORT REGULATIONS:**

ICAO – not regulated

IATA – not regulated

IMDG / IMO – not regulated

**OTHER AGENCIES:** No international regulations or restrictions are applicable.

Handle with care to avoid damaging the product and keep product dry. Do not remove product identification label or warning label.

**SECTION 15: REGULATORY INFORMATION**

**Read and understand the manufacturer's instructions and precautionary label on this product.**

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more information. Before using this product, understand and your employer's safety practices.

**U.S. FEDERAL REGULATIONS:** Under the OSHA Hazard Communication Standard these products are considered as hazardous.

**U.S. EPA TSCA (TOXIC SUBSTANCE CONTROL ACT):** All constituents of these products are on the TSCA inventory list or are excluded from listing.



**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)/SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):**

Reportable Quantities (RQ's) and/or Threshold Planning Quantities (TPQ's):

Ingredient name:	RQ (lb)	TPQ(lb)
Product is a solid solution in the form of a solid article	-	-

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to our Local Emergency Planning Committee.

**EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:**

The following metallic components are listed as SARA 313 "TOXIC CHEMICALS" and are potentially subject to annual SARA 313 reporting. See Section 3 for percent and if the ingredient is present.

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>DISCLOSURE THRESHOLD</u>
Chromium & chromium compounds	7440-47-3	1.0 % de minimis concentration
Chromium VI	Not listed	0.1 % de minimis concentration
Barium compounds	Not listed	1.0 % de minimis concentration
Cobalt	7440-48-4	0.1 % de minimis concentration
Copper	7440-50-8	1.0 % de minimis concentration
Manganese	7439-96-5	1.0 % de minimis concentration
Nickel	7440-02-0	0.1 % de minimis concentration
Aluminum (fume or dust)	7429-90-5	1.0 % de minimis concentration
Silver	7440-22-4	1.0 % de minimis concentration

Package Labeling:

Additional advice on labeling

As a finished article the product does not need to be labeled in accordance with EC-directives or respective national laws.

International rules may vary and the appropriate regulations should be followed as defined by the country where the products are used.

**SECTION 16: OTHER INFORMATION**

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format.

**Prepared by:** MG Welding Products, USA

R-phrases

**Nickel**

R40 : Limited evidence of a carcinogenic effect.

R43 : May cause sensitization by skin contact.

R48/23 : Toxic: danger of serious damage to health by prolonged exposure through inhalation.

**Barium Carbonate**

R22 : Harmful if swallowed.

S-phrases

**Nickel**

S2: Keep out of the reach of children

S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection

S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S61: Avoid release to the environment. Refer to special instructions/Safety data sheet.

**Barium Carbonate**

S2 : Keep out of the reach of children.

**SUPPLEMENTAL INFORMATION – DEFINITIONS:**

IARC: International Agency for the Research on Cancer  
NIOSH: National Institute for Occupational Safety and Health  
OSHA: U.S. Occupational Safety and Health Administration  
ACGIH: American Conference of Governmental Industrial Hygienists  
CAS: Chemical Abstracts Service Registry Number  
EINECS: European Inventory of Existing Chemical Substances

PEL: Permissible Exposure Limit  
NTP: National Toxicology Program  
TLV: Threshold Limit Value  
ECD: European Council Directive  
GHS: Globally Harmonized System

The information in this SDS was obtained from sources we believe are reliable. However, this information is provided without any representation or warranty, expressed or implied, regarding accuracy or correctness. The conditions 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 of loss, damage, or expense arising from it or any way connected with the handling, storage, use, or disposal of the product.

## SAFETY DATA SHEET

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200 AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499. STANDARD SHOULD BE CONSULTED FOR SPECIFIC REQUIREMENTS.

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**NAME OF PRODUCT:** MG: 500, 505, 506, 510, 511, 518, 530, 540, 543, 560, 570, EASY STRIKE

**MANUFACTURER/  
SUPPLIER:** MESSER – MG WELDING PRODUCTS  
N94 W14355 GARWIN MACE DRIVE  
MENOMONEE FALLS, WI 53051 USA

**TELEPHONE NUMBER  
FAX NUMBER:** (262) 532-4677  
(262) 255-5542

**MG WELDING WEBSITE:** [www.messerwelding.com](http://www.messerwelding.com)

**PRODUCT CLASSIFICATION:** Covered Electrodes for Shielded Metal Arc Welding (SMAW)  
MG 560 & MG 570 are for Piercing, Cutting, and Chamfering – Not to be use for joining materials.

### SECTION 2: HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Welding electrodes are not normally considered hazardous as shipped or when handled. Gloves should be worn when handling to prevent cuts. Avoid inhalation of dust from these products. Skin contact may cause possible allergic reactions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the pacemaker device. When this product is used in a welding process the most important hazards are: heat, radiation, electric shock, and welding fumes.

**ROUTES OF ENTRY:**

Primary route of entry is the respiratory system. Other possible routes are eyes and/or skin contact.

**POTENTIAL HEALTH EFFECTS:**

**EYES:** RADIATION: Arc rays from welding can injure eyes. HEAT and MOLTEN METAL can severely damage eyes.

**SKIN:** HEAT: Spatter and molten metal can cause burn injuries  
ELECTRICITY: **Electric shock can kill!**  
RADIATION from the arc: Skin cancer has been reported.

**INGESTION:** Not an expected route of entry, but if ingested product could cause serious injury.

**INHALATION:** FUMES: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness of the nose, throat or eyes.

**ACUTE HEALTH HAZARDS:** See Section 11

**CHRONIC HEALTH HAZARDS:** See Section 11

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** Nothing found.

**WARNING:** This product contains or produces a chemical known to the State of California to cause birth defects (or other reproductive harm) and cancer. (California Health & Safety Code 25249.5 *et seq.*)

**WARNING:** avoid breathing welding fumes and gases; they may dangerous to your health. Always use adequate ventilation and use appropriate personal protection equipment.

**CARCINOGENICITY:**

**CHROMIUM** - Chromium VI is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**NICKEL** - is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**MANGANESE** is listed by *ACGIH* as Group A4: Not classifiable as a human carcinogen.

**TITANIUM DIOXIDE** is listed as being unclassifiable as to Carcinogenicity in humans by *IARC* and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**SILICON DIOXIDE** - is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**WELDING FUMES** (not otherwise specified) are considered to be carcinogenic defined with no further categorization by *NIOSH* and *IARC*.

**Package Labeling:**

Although this product does not require a hazard warning label in all countries, we recommend that the safety advice should be observed:

**GHS not applicable for: MG 500, MG 505, MG 506, MG 510, MG 511, MG 518, MG 540, MG 560, MG 570, EASY STRIKE**

**GHS Pictograms GHS07, GHS08 for MG 530 and MG 543 - contains Nickel**



**R-Phrases:**

Limited evidence of carcinogenic effect

May cause sensitization by skin contact

Toxic: danger of serious damage to health by prolonged exposure through inhalation

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Brazing/welding fumes and vapors may cause metal fume fever (headache, dizziness, dryness, cough, nausea, and fever) and these symptoms may appear 4-12 hours after exposure

May cause irritation by prolonged inhalation of brazing/welding fumes.

**GHS: Nickel**

Hazard categories:

Respiratory/skin sensitization: Skin Sens: 1

Carcinogenicity: Carc. 2

Specific target organ toxicity – repeated exposure: STOT RE 1

May cause an allergic skin reaction.

Suspected of causing cancer.

Causes damage to organs through prolonged or repeated exposure.

**Hazard Statements: Nickel**

H317 May cause an allergic skin reaction

H351 Suspected of causing cancer

H372 Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements:**

P285 In case of inadequate ventilation wear respiratory protection

P314 Get medical advice if you do not feel well

P280 Wear protective gloves/protective clothing/eye protection/face protection

P202 Do not handle until all safety precautions have been read and understood

P260 Do not breathe dust/fume/gas/mist/vapors/spray

P501 Dispose of contents/container to waste treatment facility in accordance with local and national regulations

Before using this product, contact your doctor to determine if exposure to product or use of this product will aggravate your medical conditions.

**ADDITIONAL LABELING INFORMATION**

As an article the product does not need to be labeled in accordance with EC-directives or respective national laws. Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label according to this Annex (Annex I GHS), if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the criteria of this Annex.

Instead, the supplier shall provide the information to downstream users or distributors by means of the SDS.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**IMPORTANT:** This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered in Section 8. The chemicals or compounds subject to reporting under Title III, in Section 313, of the Superfund Amendments and Reauthorization Act (SARA) are marked by the symbol #.

INGREDIENTS	CAS NUMBER	Exposure Limit (mg/m <sup>3</sup> )		Percent Ingredients (by weight)												
		OSHA PEL	ACGIH-TLV	500	505	506	510	511	518	530	540	543	EASY STRIKE	560	570	
Iron	7439-89-6	10 (as Fe)	5 (as Fe)	L	L	L	L	L	L	L	L	L	L	L	L	K
Titanium Dioxide	13463-67-7	15 (dust)	10	G	G	C	G	C	C	C	C	C	C	G	C	
Kaolin	1332-58-7	5	2	D	C		C						D			
Feldspar	68476-25-5	10	2	C			C						C			
Cellulose	9004-34-6	5	10	C	C	E	C	E					C	E	F	
Manganese #	7439-96-5	5 (ceiling)	0.1	C	C	B	C	A	B	B	B	B	C	C	A	
Silicon Dioxide	14808-60-7	**	0.05	B	B		C		A	A	A	A	B	C	C	
Mica	12001-26-2	20 mppcf*	3		B											
Iron Oxide	1309-37-1	10 (as Fe)	5 (as Fe)			B		B							D	
Magnesite	546-93-0	5	10													E
Calcium Carbonate	1317-65-3	5	10				C		F	F	F	F				
Potassium Silicate	1312-76-1	Not listed	Not listed	C	C	C	C	C	C	C	C	C	C	C	C	C
Sodium Silicate	1344-09-8	Not listed	Not listed			B	C	C	C	C	C	C			C	C
Calcium Fluoride	7789-75-5	2.5 (as F)	2.5 (as F)						F	F	F	F				
Lithium Aluminum - Silicate (# aluminum)	12068-40-5	Not listed	5 (as Al fume)							C	C					
Nickel #	7440-02-0	1	0.2							B		A				
Molybdenum	7439-98-7	5	0.5							A						
Chromium #	7440-47-3	1	0.5							A						
Graphite	7782-42-5	15 mppcf*	2													C

\*mppcf = millions of particles per cubic foot of air

\*\* 10 mg/m<sup>3</sup> / (% SiO<sub>2</sub> + 2)

**PERCENT RANGE CODE (by Weight) for above:**

A = 0.1 - 1%      C = 1 - 5%      E = 5 - 10%      G = 10 - 30%      J = 30 - 60%      L = 60 - 100  
 B = 0.5 - 1.5%      D = 3 - 7%      F = 7 - 13%      H = 15 - 40%      K = 40 - 70%

**CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS IF PRESENT**

<u>INGREDIENTS</u>	<u>CAS NUMBER</u>	<u>EINECS NUMBER</u>	<u>Hazard Classification per ECD 67/548/EEC</u>
Iron	7439-89-6	231-096-4	No
Titanium Dioxide	13463-67-7	236-675-5	No
Kaolin	1332-58-7	310-194-1	No
Feldspar	68476-25-5	270-666-7	No
Cellulose	9004-34-6	232-674-9	No
Manganese #	7439-96-5	231-105-1	No
Silicon Dioxide	14808-60-7	238-878-4	No
Mica	12001-26-2	310-127-6	No
Iron Oxide	1309-37-1	215-168-2	No
Magnesite	546-93-0	208-915-9	No
Calcium Carbonate	1317-65-3	215-279-6	No
Potassium Silicate	1312-76-1	215-199-1	No
Sodium Silicate	1344-09-8	215-687-4	No
Calcium Fluoride	7789-75-5	232-188-7	No
Lithium Aluminum -Silicate (# Al)	12068-40-5	235-098-6	No
Nickel #	7440-02-0	231-111-4	Carc. Cat. 3; R40 - T; R48/23 - R43
Molybdenum	7439-98-7	231-107-2	No
Chromium #	7440-47-3	231-157-5	No
Graphite	7782-42-5	231-955-3	No

Exposure limits are subject to change. Contact ACGIH and OSHA for current values. See Section 16 for European Council Directive 67/548/EEC R-phrases and S-phrases if applicable.

**SECTION 4: FIRST AID MEASURES**

**EMERGENCY & FIRST AID PROCEDURES:** Call for medical aid. Employ first aid techniques recommended by The American Red Cross.

**EYES:** Flush with a large amount of fresh water for at least 15 minutes to remove dusts or fumes. Get medical attention. For radiation burns due to arc flash, see physician.

**SKIN:** 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 for irritations that persist.

**INGESTION:** Seek medical attention.

**INHALATION:** Remove to fresh air. If breathing is difficult administer oxygen. If breathing has stopped, begin artificial respiration and obtain medical assistance immediately.

**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.

**GENERAL:** Move to fresh air and call for medical aid.

**SECTION 5: FIRE FIGHTING MEASURES**

**Non-Flammable:** 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, nonflammable, non-explosive, and non-reactive.

**FLAMMABLE LIMITS IN AIR (% by volume): UPPER: N/A LOWER:N/A**

**FLASH POINT: N/A**

**AUTOIGNITION TEMPERATURE: N/A**

**NFPA HAZARD CLASSIFICATION:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Other:

**RATING UNDER NATIONAL FIRE PROTECTION 704:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Protection:

**EXTINGUISHING MEDIA:** Use the extinguishing media recommended for the burning material and fire situation.

**SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained breathing apparatus as fume or vapors may be harmful.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Reasonably expected fume constituents of the fume could include complex oxides of iron and manganese. Chromium oxides may be present in MG 530 and nickel and chromium oxides may be present in MG 543.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**ACCIDENTAL RELEASE MEASURES:** Solid objects may be picked up and placed in a container. Wear protective clothing and make sure that the solid objects are at room temperature before handling.

**PERSONAL PRECAUTIONS:** Gloves should be worn when handling to prevent cuts.

**ENVIRONMENTAL PRECAUTIONS:** Do not flush residue into waterways.

**SECTION 7: HANDLING AND STORAGE**

**HANDLING:** Handle with care to avoid cuts and to keep the wire from piercing the skin. Wear gloves when handling welding consumables. Avoid exposure to dust and do not ingest. Some individuals can develop and allergic reaction to certain materials. Keep all warning labels and identification labels on the product.

**STORAGE:** Keep material sealed and dry before use and do not remove product identification label or warning label. After using, keep remaining product sealed and dry and do not remove product identification label or warning label.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**



**Read and understand the manufacturer's instructions and precautionary label on this product.**

Always use adequate ventilation and wear appropriate personal protection. Do not breathe welding fumes and gases; they are dangerous to your health.

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more detail on the following:

**ENGINEERING CONTROLS:** Proper ventilation must be maintained.

**ARC RAYS** and **SPARKS** can injure eyes and burn skin. **ELECTRIC SHOCK** can kill! Wear correct hand, eye, head, and body protection.

**VENTILATION:** 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 the welder to keep their head out of the fumes. Monitor fume levels and do not exceed permissible exposure limits or values.

**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.

**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.

**PROTECTIVE CLOTHING:** 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.

**WORK HYGIENIC PRACTICES:** Do not eat or consume beverages in the work area.

**EXPOSURE GUIDELINES:** Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. When the electrode is consumed, fume and gas decomposition products generated 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 materials in Section 3, plus those from the base metal and coating, etc., as noted above. These components are virtually always present as complex oxides and not as metals (Characterization of Arc Welding Fume: American Welding Society). Reasonably expected fume constituents of the fume could include: complex oxides of iron, manganese, and potassium. Chromium and nickel oxides may also be present. The table below lists reasonably expected fumes that may be generated. Refer to Section 11 for more information about welding fumes.

**Exposure Limit (mg/m<sup>3</sup>)**

<u>SUBSTANCE</u>	<u>CAS NUMBER</u>	<u>OSHA PEL</u>	<u>ACGIH-TLV</u>
Iron Oxide	1309-37-1	10 (as Fe)	5 (as Fe)
Nitric Oxide	10102-43-9	30	31
Chromium (VI)	Not listed	0.005	0.05 (as Cr VI)
Nickel Oxide #	1313-99-1	1 (as Ni)	0.2 (as Ni)
Manganese fume #	7439-96-5	5	0.02

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/m<sup>3</sup>) may be reached before the ACGIH recommended general welding fume limit of 5 mg/m<sup>3</sup> is reached. Monitor fume levels and Cr VI level. Train workers about the hazards of Cr (VI). **Read and comply with OSHA's 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](http://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.



## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Solid appearance, non volatile, wire with a flux coating. No odor. Not soluble in water.

**MELTING POINT:** > 1800 °F (> 1000 °C)

## SECTION 10: STABILITY AND REACTIVITY

**GENERAL:** These items are only intended for normal welding purposes.

**STABILITY:** Stable under normal conditions.

**HAZARDOUS POLYMERIZATION:** Will not occur

**REACTIVITY:** Contact with chemical substances like acids or strong bases could cause generation of gas.

### HAZARDOUS DECOMPOSITION OR BY-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 and nickel. 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.

Manganese also has a low exposure limit listed in the USA. Other country exposure limits may be different and the appropriate country standards should be used.

## SECTION 11: TOXICOLOGICAL INFORMATION

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure, and the electrode 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).

**EFFECTS OF OVEREXPOSURE** - Electric arc welding may create one or more of the following health hazards:

**FUMES AND GASES** can be dangerous to your health.

**PRIMARY ROUTES OF ENTRY** are the respiratory system. Other possible routes are eyes and/or skin contact.

**PREEXISTING** respiratory or allergic conditions may be aggravated in some individuals (i.e. asthma, emphysema).

**SHORT TERM (ACUTE) 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. **CHROMIUM**- Inhalation of chromium can cause irritation of nasal membranes and skin. **FLUORIDES** - 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. **NICKEL, NICKEL OXIDE** - May cause metallic taste, nausea, tightness in chest, fever, and allergic reactions.

**LONG TERM (CHRONIC) OVEREXPOSURE** 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. **IRON, IRON OXIDE** - 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. **MANGANESE** - Long term exposure may lead to "Manganism." Central nervous system is affected and symptoms include muscular weakness, impaired speech, impaired movement, and tremors. Exposed workers should get quarterly medical examinations for manganism. Bronchitis and some lung fibrosis have been reported.

**FLUORIDES** - 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. **NICKEL, NICKEL OXIDE** - Long term overexposure to nickel products may cause lung fibrosis or pneumoconiosis. Long term overexposure to **HEXAVALENT CHROMIUM (CrVI)** is reported to cause lung cancer in humans.

Monitor fume levels and do not exceed permissible limits.

## SECTION 12: ECOLOGICAL INFORMATION

**MATERIAL:** 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.

**CONTAMINATED PACKAGING:** Empty containers should be taken for local recycling, recovery, or waste disposal. Metals may be recycled.

## SECTION 13: DISPOSAL CONSIDERATION

**WASTE DISPOSAL METHOD:** Dispose of any grinding dust and waste residues in accordance with EPA or local regulations. Plastic materials, cardboard, and wire can be re-cycled.

**U.S.A. RCRA:** 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.

## SECTION 14: TRANSPORTATION INFORMATION

**DOMESTIC TRANSPORT REGULATIONS (USA):** DOT - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (CANADA):** TDG - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (MEXICO):** MEX - not regulated.

### INTERNATIONAL TRANSPORT REGULATIONS:

ICAO – not regulated

IATA – not regulated

IMDG / IMO – not regulated

**OTHER AGENCIES:** No international regulations or restrictions are applicable.

Handle with care to avoid damaging the product and keep product dry. Do not remove product identification label or warning label.

## SECTION 15: REGULATORY INFORMATION

### **Read and understand the manufacturer's instructions and precautionary label on this product.**

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more information. Before using this product, understand and your employer's safety practices.

**U.S. FEDERAL REGULATIONS:** Under the OSHA Hazard Communication Standard these products are considered as hazardous.

**U.S. EPA TSCA (TOXIC SUBSTANCE CONTROL ACT):** All constituents of these products are on the TSCA inventory list or are excluded from listing.

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)/SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):**

Reportable Quantities (RQ's) and/or Threshold Planning Quantities (TPQ's):

Ingredient name:	RQ (lb)	TPQ(lb)
Product is a solid solution in the form of a solid article	-	-

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to our Local Emergency Planning Committee.

**EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:**

The following metallic components are listed as SARA 313 "TOXIC CHEMICALS" and are potentially subject to annual SARA 313 reporting. See Section 3 for percent and if the ingredient is present.

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>DISCLOSURE THRESHOLD</u>
Chromium & chromium compounds	7440-47-3	1.0 % de minimis concentration
Chromium VI	Not listed	0.1 % de minimis concentration
Barium compounds	Not listed	1.0 % de minimis concentration
Cobalt	7440-48-4	0.1 % de minimis concentration
Copper	7440-50-8	1.0 % de minimis concentration
Manganese	7439-96-5	1.0 % de minimis concentration
Nickel	7440-02-0	0.1 % de minimis concentration
Aluminum (fume or dust)	7429-90-5	1.0 % de minimis concentration
Silver	7440-22-4	1.0 % de minimis concentration

Package Labeling:

Additional advice on labeling - as a finished article the product does not need to be labeled in accordance with EC-directives or respective national laws.

International rules may vary and the appropriate regulations should be followed as defined by the country where the products are used.

**SECTION 16: OTHER INFORMATION**

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format.

**Prepared by:** MG Welding Products, USA

<p>R-phrases <b>Nickel</b> R40 : Limited evidence of a carcinogenic effect. R43 : May cause sensitization by skin contact. R48/23 : Toxic: danger of serious damage to health by prolonged exposure through inhalation.</p> <p>S-phrases <b>Nickel</b> S2: Keep out of the reach of children S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible) S61: Avoid release to the environment. Refer to special instructions/Safety data sheet.</p>
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**SUPPLEMENTAL INFORMATION – DEFINITIONS:**

IARC: International Agency for the Research on Cancer  
NIOSH: National Institute for Occupational Safety and Health  
OSHA: U.S. Occupational Safety and Health Administration  
ACGIH: American Conference of Governmental Industrial Hygienists  
CAS: Chemical Abstracts Service Registry Number  
EINECS: European Inventory of Existing Chemical Substances

PEL: Permissible Exposure Limit  
NTP: National Toxicology Program  
TLV: Threshold Limit Value  
ECD: European Council Directive  
GHS: Globally Harmonized System

The information in this SDS was obtained from sources we believe are reliable. However, this information is provided without any representation or warranty, expressed or implied, regarding accuracy or correctness. The conditions 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 of loss, damage, or expense arising from it or any way connected with the handling, storage, use, or disposal of the product.

## SAFETY DATA SHEET

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200 AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499. STANDARD SHOULD BE CONSULTED FOR SPECIFIC REQUIREMENTS.

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**NAME OF PRODUCT:** MG: 600, SUPER 600, 610, 650, 660, 665, 670, 678, 690, 695

**MANUFACTURER/  
SUPPLIER:** MESSER – MG WELDING PRODUCTS  
N94 W14355 GARWIN MACE DRIVE  
MENOMONEE FALLS, WI 53051 USA

**TELEPHONE NUMBER  
FAX NUMBER:** (262) 532-4677  
(262) 255-5542

**MG WELDING WEBSITE:** [www.messerwelding.com](http://www.messerwelding.com)

**PRODUCT CLASSIFICATION:** Covered Electrodes for Shielded Metal Arc Welding (SMAW)

### SECTION 2: HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Welding electrodes are not normally considered hazardous as shipped or when handled. Gloves should be worn when handling to prevent cuts. Avoid inhalation of dust from these products. Skin contact may cause possible allergic reactions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the pacemaker device. When this product is used in a welding process the most important hazards are: heat, radiation, electric shock, and welding fumes.

**ROUTES OF ENTRY:**

Primary route of entry is the respiratory system. Other possible routes are eyes and/or skin contact.

**POTENTIAL HEALTH EFFECTS:**

**EYES:** RADIATION: Arc rays from welding can injure eyes. HEAT and MOLTEN METAL can severely damage eyes.

**SKIN:** HEAT: Spatter and molten metal can cause burn injuries  
ELECTRICITY: **Electric shock can kill!**  
RADIATION from the arc: Skin cancer has been reported.

**INGESTION:** Not an expected route of entry, but if ingested product could cause serious injury.

**INHALATION:** FUMES: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness of the nose, throat or eyes.

**ACUTE HEALTH HAZARDS:** See Section 11

**CHRONIC HEALTH HAZARDS:** See Section 11

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** Nothing found.

**WARNING:** This product contains or produces a chemical known to the State of California to cause birth defects (or other reproductive harm) and cancer. (California Health & Safety Code 25249.5 *et seq.*)

**WARNING:** avoid breathing welding fumes and gases; they may dangerous to your health. Always use adequate ventilation and use appropriate personal protection equipment.

**CARCINOGENICITY:**

**CHROMIUM** - Chromium VI is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**NICKEL** - is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**MANGANESE** is listed by *ACGIH* as Group A4: Not classifiable as a human carcinogen.

**TITANIUM DIOXIDE** is listed as being unclassifiable as to Carcinogenicity in humans by *IARC* and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

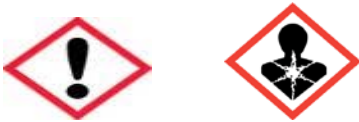
**SILICON DIOXIDE** - is listed as being carcinogenic to humans on *IARC* and *NTP* lists, and is listed by *NIOSH* as being a potential occupational carcinogen (with no further categorization).

**WELDING FUMES** (not otherwise specified) are considered to be carcinogenic defined with no further categorization by *NIOSH* and *IARC*.

**Package Labeling:**

Although this product does not require a hazard warning label in all countries, we recommend that the safety advice should be observed:

**GHS Pictograms GHS 07, GHS 08 - Contains Nickel**



**R-Phrases:**

Limited evidence of carcinogenic effect

May cause sensitization by skin contact

Toxic: danger of serious damage to health by prolonged exposure through inhalation

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Brazing/welding fumes and vapors may cause metal fume fever (headache, dizziness, dryness, cough, nausea, and fever) and these symptoms may appear 4-12 hours after exposure

May cause irritation by prolonged inhalation of brazing/welding fumes.

**GHS: Nickel**

Hazard categories:

Respiratory/skin sensitization: Skin Sens: 1

Carcinogenicity: Carc. 2

Specific target organ toxicity – repeated exposure: STOT RE 1

May cause an allergic skin reaction.

Suspected of causing cancer.

Causes damage to organs through prolonged or repeated exposure.

**Hazard Statements: Nickel**

H317 May cause an allergic skin reaction

H351 Suspected of causing cancer

H372 Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements:**

P285 In case of inadequate ventilation wear respiratory protection

P314 Get medical advice if you do not feel well

P280 Wear protective gloves/protective clothing/eye protection/face protection

P202 Do not handle until all safety precautions have been read and understood

P260 Do not breathe dust/fume/gas/mist/vapors/spray

P501 Dispose of contents/container to waste treatment facility in accordance with local and national regulations

Before using this product, contact your doctor to determine if exposure to product or use of this product will aggravate your medical conditions.

**ADDITIONAL LABELING INFORMATION**

As an article the product does not need to be labeled in accordance with EC-directives or respective national laws. Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label according to this Annex (Annex I GHS), if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the criteria of this Annex. Instead, the supplier shall provide the information to downstream users or distributors by means of the SDS.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**IMPORTANT:** This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered in Section 8. The chemicals or compounds subject to reporting under Title III, in Section 313, of the Superfund Amendments and Reauthorization Act (SARA) are marked by the symbol #.

INGREDIENTS	CAS NUMBER	Exposure Limit (mg/m <sup>3</sup> )		Percent Ingredients (by weight)										
		OSHA PEL	ACGIH-TLV	600	610	650	660	670	678	690	Super 600	665	695	
Nickel #	7440-02-0	1	0.2	F	G	F	F	F	F	F	K	F	F	K
Iron	7439-89-6	10 (as Fe)	5 (as Fe)	J	J	J	J	J	J	J	E	J	J	B
Calcium Carbonate	1317-65-3	5	10	C	C	C	C	C	C	C	C	C	C	E
Titanium Dioxide	13463-67-7	15	10	G	G	G	G	F	F	E	G	F	C	
Sodium Silicate	1344-09-8	Not established	Not established	C	C	C	C	C	C	C	C	C	C	C
Potassium Silicate	1312-76-1	Not established	Not established	C	C	C	C	C	C	C	C	C	C	C
Calcium Fluoride	7789-75-5	2.5 (as F)	2.5 (as F)	C	C	C	C	C	C	C	C	C	C	C
Chromium #	7440-47-3	1	0.5	H	H	G	G	G	G	H	H	G	H	
Manganese #	7439-96-5	5 (ceiling)	0.1	A	C	B	B	C	C	G	A	C	C	
Molybdenum	7439-98-7	5	0.5				C	B			A	C	F	
Lithium Aluminum Silicate (# aluminum)	12068-40-5	Not established	5 (as Al fume)	C		C	C			C	C			
Feldspar	68476-25-5	10	2	C		C	C			C	C			
Sodium Cryolite	15096-52-3	2.5 (as F)	2.5 (as F)										C	
Strontium Carbonate	1633-05-2	Not established	Not established										C	
Potassium Oxalate	6487-48-5	Not established	5	B		B	B				B			
Columbium	7440-03-1	5	5							C			C	
Silicon Dioxide	14808-60-7	**	0.05					D	D		A	E	B	

\*mppcf = millions of particles per cubic foot of air

\*\* 10 mg/m<sup>3</sup> / (% SiO<sub>2</sub> + 2)

**PERCENT RANGE CODE (by Weight) for above:**

A = 0.1 - 1%      C = 1 - 5%      E = 5 - 10%      G = 10 - 30%      J = 30 - 60%      L = 60 - 100  
 B = 0.5 - 1.5%      D = 3 - 7%      F = 7 - 13%      H = 15 - 40%      K = 40 - 70%

CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS IF PRESENT

<u>INGREDIENTS</u>	<u>CAS NUMBER</u>	<u>EINECS NUMBER</u>	<u>Hazard Classification per ECD 67/548/EEC</u>
Nickel #	7440-02-0	231-111-4	Carc. Cat. 3; R40 - T; R48/23 - R43
Iron	7439-89-6	231-096-4	No
Calcium Carbonate	1317-65-3	215-279-6	No
Titanium Dioxide	13463-67-7	236-675-5	No
Sodium Silicate	1344-09-8	215-687-4	No
Potassium Silicate	1312-76-1	215-199-1	No
Calcium Fluoride	7789-75-5	232-188-7	No
Chromium #	7440-47-3	231-157-5	No
Manganese #	7439-96-5	231-105-1	No
Molybdenum	7439-98-7	231-107-2	No
Lithium Aluminum -Silicate (# Al)	12068-40-5	235-098-6	No
Feldspar	68476-25-5	270-666-7	No
Sodium Cryolite	15096-52-3	239-148-8	T; R48/23/25 - Xn; R20/22 - N; R51-53
Strontium Carbonate	1633-05-2	216-643-7	No
Potassium Oxalate	6487-48-5	209-506-8	No
Columbium (Niobium)	7440-03-1	231-113-5	No
Silicon Dioxide	14808-60-7	238-878-4	No

Exposure limits are subject to change. Contact ACGIH and OSHA for current values. See Section 16 for European Council Directive 67/548/EEC R-phrases and S-phrases if applicable.

**SECTION 4: FIRST AID MEASURES**

**EMERGENCY & FIRST AID PROCEDURES:** Call for medical aid. Employ first aid techniques recommended by The American Red Cross.

**EYES:** Flush with a large amount of fresh water for at least 15 minutes to remove dusts or fumes. Get medical attention. For radiation burns due to arc flash, see physician.

**SKIN:** 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 for irritations that persist.

**INGESTION:** Seek medical attention.

**INHALATION:** Remove to fresh air. If breathing is difficult administer oxygen. If breathing has stopped, begin artificial respiration and obtain medical assistance immediately.

**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.

**GENERAL:** Move to fresh air and call for medical aid.



## SECTION 5: FIRE FIGHTING MEASURES

**Non-Flammable:** 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, nonflammable, non-explosive, and non-reactive.

**FLAMMABLE LIMITS IN AIR (% by volume): UPPER: N/A LOWER:N/A**

**FLASH POINT: N/A**

**AUTOIGNITION TEMPERATURE: N/A**

**NFPA HAZARD CLASSIFICATION:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Other:

**RATING UNDER NATIONAL FIRE PROTECTION 704:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Protection:

**EXTINGUISHING MEDIA:** Use the extinguishing media recommended for the burning material and fire situation.

**SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained breathing apparatus as fume or vapors may be harmful.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Reasonably expected fume constituents of the fume could include complex oxides of iron and manganese. Chromium and nickel oxides may also be present.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**ACCIDENTAL RELEASE MEASURES:** Solid objects may be picked up and placed in a container. Wear protective clothing and make sure that the solid objects are at room temperature before handling.

**PERSONAL PRECAUTIONS:** Gloves should be worn when handling to prevent cuts.

**ENVIRONMENTAL PRECAUTIONS:** Do not flush residue into waterways.

## SECTION 7: HANDLING AND STORAGE

**HANDLING:** Handle with care to avoid cuts and to keep the wire from piercing the skin. Wear gloves when handling welding consumables. Avoid exposure to dust and do not ingest. Some individuals can develop and allergic reaction to certain materials. Keep all warning labels and identification labels on the product.

**STORAGE:** Keep material sealed and dry before use and do not remove product identification label or warning label. After using, keep remaining product sealed and dry and do not remove product identification label or warning label.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION



**Read and understand the manufacturer's instructions and precautionary label on this product.**

Always use adequate ventilation and wear appropriate personal protection. Do not breathe welding fumes and gases; they are dangerous to your health.

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more detail on the following:

**ENGINEERING CONTROLS:** Proper ventilation must be maintained.

**ARC RAYS** and **SPARKS** can injure eyes and burn skin. **ELECTRIC SHOCK** can kill! Wear correct hand, eye, head, and body protection.

**VENTILATION:** 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 the welder to keep their head out of the fumes. Monitor fume levels and do not exceed permissible exposure limits or values.

**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.

**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.

**PROTECTIVE CLOTHING:** 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.

**WORK HYGIENIC PRACTICES:** Do not eat or consume beverages in the work area.

**EXPOSURE GUIDELINES:** Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. When the electrode is consumed, fume and gas decomposition products generated 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 materials in Section 3, plus those from the base metal and coating, etc., as noted above. These components are virtually always present as complex oxides and not as metals (Characterization of Arc Welding Fume: American Welding Society). Reasonably expected fume constituents of the fume could include: complex oxides of iron, manganese, and potassium. Chromium and nickel oxides may also be present. The table below lists reasonably expected fumes that may be generated. Refer to Section 11 for more information about welding fumes.

**Exposure Limit (mg/m<sup>3</sup>)**

<u>SUBSTANCE</u>	<u>CAS NUMBER</u>	<u>OSHA PEL</u>	<u>ACGIH-TLV</u>
Iron Oxide	1309-37-1	10 (as Fe)	5 (as Fe)
Nitric Oxide	10102-43-9	30	31
Chromium (VI)	Not listed	0.005	0.05 (as Cr VI)
Nickel Oxide #	1313-99-1	1 (as Ni)	0.2 (as Ni)
Manganese fume #	7439-96-5	5	0.02

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/m<sup>3</sup>) may be reached before the ACGIH recommended general welding fume limit of 5 mg/m<sup>3</sup> is reached. Monitor fume levels and Cr VI level. Train workers about the hazards of Cr (VI). **Read and comply with OSHA's 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](http://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.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Solid appearance, non volatile, wire with a flux coating. No odor. Not soluble in water.

**MELTING POINT:** > 1800 °F (> 1000 °C)

## SECTION 10: STABILITY AND REACTIVITY

**GENERAL:** These items are only intended for normal welding purposes.

**STABILITY:** Stable under normal conditions.

**HAZARDOUS POLYMERIZATION:** Will not occur

**REACTIVITY:** Contact with chemical substances like acids or strong bases could cause generation of gas.

### HAZARDOUS DECOMPOSITION OR BY-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 and nickel. 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.

Manganese also has a low exposure limit listed in the USA. Other country exposure limits may be different and the appropriate country standards should be used.

## SECTION 11: TOXICOLOGICAL INFORMATION

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure, and the electrode 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).

**EFFECTS OF OVEREXPOSURE** - Electric arc welding may create one or more of the following health hazards:

**FUMES AND GASES** can be dangerous to your health.

**PRIMARY ROUTES OF ENTRY** are the respiratory system. Other possible routes are eyes and/or skin contact.

**PREEXISTING** respiratory or allergic conditions may be aggravated in some individuals (i.e. asthma, emphysema).

**SHORT TERM (ACUTE) 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. **CHROMIUM**- Inhalation of chromium can cause irritation of nasal membranes and skin. **FLUORIDES** - 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. **NICKEL, NICKEL OXIDE** - May cause metallic taste, nausea, tightness in chest, fever, and allergic reactions.

**LONG TERM (CHRONIC) OVEREXPOSURE** 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. **IRON, IRON OXIDE** - 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. **MANGANESE** - Long term exposure may lead to "Manganism." Central nervous system is affected and symptoms include muscular weakness, impaired speech, impaired movement, and tremors. Exposed workers should get quarterly medical examinations for manganism. Bronchitis and some lung fibrosis have been reported.

**FLUORIDES** - 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. **NICKEL, NICKEL OXIDE** - Long term overexposure to nickel products may cause lung fibrosis or pneumoconiosis. Long term overexposure to **HEXAVALENT CHROMIUM (CrVI)** is reported to cause lung cancer in humans.

Monitor fume levels and do not exceed permissible limits.

## SECTION 12: ECOLOGICAL INFORMATION

**MATERIAL:** 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.

**CONTAMINATED PACKAGING:** Empty containers should be taken for local recycling, recovery, or waste disposal. Metals may be recycled.

## SECTION 13: DISPOSAL CONSIDERATION

**WASTE DISPOSAL METHOD:** Dispose of any grinding dust and waste residues in accordance with EPA or local regulations. Plastic materials, cardboard, and wire can be re-cycled.

**U.S.A. RCRA:** 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, Sr, Mn, F, Na, Si, Ca, and C.

## SECTION 14: TRANSPORTATION INFORMATION

**DOMESTIC TRANSPORT REGULATIONS (USA):** DOT - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (CANADA):** TDG - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (MEXICO):** MEX - not regulated.

### INTERNATIONAL TRANSPORT REGULATIONS:

ICAO – not regulated

IATA – not regulated

IMDG / IMO – not regulated

**OTHER AGENCIES:** No international regulations or restrictions are applicable.

Handle with care to avoid damaging the product and keep product dry. Do not remove product identification label or warning label.

## SECTION 15: REGULATORY INFORMATION

### **Read and understand the manufacturer's instructions and precautionary label on this product.**

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more information. Before using this product, understand and your employer's safety practices.

**U.S. FEDERAL REGULATIONS:** Under the OSHA Hazard Communication Standard these products are considered as hazardous.

**U.S. EPA TSCA (TOXIC SUBSTANCE CONTROL ACT):** All constituents of these products are on the TSCA inventory list or are excluded from listing.

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)/SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATON ACT):**

Reportable Quantities (RQ's) and/or Threshold Planning Quantities (TPQ's):

Ingredient name:	RQ (lb)	TPQ(lb)
Product is a solid solution in the form of a solid article	-	-

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to our Local Emergency Planning Committee.

**EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:**

The following metallic components are listed as SARA 313 "TOXIC CHEMICALS" and are potentially subject to annual SARA 313 reporting. See Section 3 for percent and if the ingredient is present.

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>DISCLOSURE THRESHOLD</u>
Chromium & chromium compounds	7440-47-3	1.0 % de minimis concentration
Chromium VI	Not listed	0.1 % de minimis concentration
Barium compounds	Not listed	1.0 % de minimis concentration
Cobalt	7440-48-4	0.1 % de minimis concentration
Copper	7440-50-8	1.0 % de minimis concentration
Manganese	7439-96-5	1.0 % de minimis concentration
Nickel	7440-02-0	0.1 % de minimis concentration
Aluminum (fume or dust)	7429-90-5	1.0 % de minimis concentration
Silver	7440-22-4	1.0 % de minimis concentration

Package Labeling:

Additional advice on labeling - as a finished article the product does not need to be labeled in accordance with EC-directives or respective national laws.

International rules may vary and the appropriate regulations should be followed as defined by the country where the products are used.

**SECTION 16: OTHER INFORMATION**

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format.

**Prepared by:** MG Welding Products, USA

R-phrases

**Nickel**

R40 : Limited evidence of a carcinogenic effect.

R43 : May cause sensitization by skin contact.

R48/23 : Toxic: danger of serious damage to health by prolonged exposure through inhalation.

**Sodium Hexafluoroaluminate (Sodium Cryolite)**

R20/22 : Harmful by inhalation and if swallowed.

R48/23/25 : Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases

**Nickel**

S2: Keep out of the reach of children

S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection

S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S61: Avoid release to the environment. Refer to special instructions/Safety data sheet.

**Sodium Hexafluoroaluminate (Sodium Cryolite)**

S1/2 : Keep locked up and out of the reach of children.

S22 : Do not breathe dust. S37 : Wear suitable gloves.

S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.

**SUPPLEMENTAL INFORMATION – DEFINITIONS:**

IARC: International Agency for the Research on Cancer

NIOSH: National Institute for Occupational Safety and Health

OSHA: U.S. Occupational Safety and Health Administration

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service Registry Number

EINECS: European Inventory of Existing Chemical Substances

PEL: Permissible Exposure Limit

NTP: National Toxicology Program

TLV: Threshold Limit Value

ECD: European Council Directive

GHS: Globally Harmonized System

The information in this SDS was obtained from sources we believe are reliable. However, this information is provided without any representation or warranty, expressed or implied, regarding accuracy or correctness. The conditions 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 of loss, damage, or expense arising from it or any way connected with the handling, storage, use, or disposal of the product.

## SAFETY DATA SHEET

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200 AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499. STANDARD SHOULD BE CONSULTED FOR SPECIFIC REQUIREMENTS.

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**NAME OF PRODUCT:** MG ALUMINATOR

**MANUFACTURER/  
SUPPLIER:** MESSER – MG WELDING PRODUCTS  
N94 W14355 GARWIN MACE DRIVE  
MENOMONEE FALLS, WI 53051 USA

**TELEPHONE NUMBER** (262) 532-4677  
**FAX NUMBER:** (262) 255-5542

**MG WELDING WEBSITE:** [www.messerwelding.com](http://www.messerwelding.com)

**PRODUCT CLASSIFICATION:** Covered Electrode for Shielded Metal Arc Welding (SMAW)

### SECTION 2: HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Welding electrodes are not normally considered hazardous as shipped or when handled. Gloves should be worn when handling to prevent cuts. Avoid inhalation of dust from these products. Skin contact may cause possible allergic reactions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the pacemaker device. When these products are used in a welding or brazing process the most important hazards are: heat, radiation, electric shock when welding, and welding fumes.

**ROUTES OF ENTRY:**

Primary route of entry is the respiratory system. Other possible routes are eyes ingestion, and/or skin contact.

**POTENTIAL HEALTH EFFECTS:**

**EYES:** RADIATION: Arc rays from welding can injure eyes. HEAT and MOLTEN METAL can severely damage eyes.

**SKIN:** HEAT: Spatter and molten metal can cause burn injuries  
ELECTRICITY: **Electric shock can kill!**  
RADIATION from the arc: Skin cancer has been reported.

**INGESTION:** Not an expected route of entry, but if ingested product could cause serious injury.

**INHALATION:** FUMES: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness of the nose, throat or eyes.

**ACUTE HEALTH HAZARDS:** See Section 11

**CHRONIC HEALTH HAZARDS:** See Section 11

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** Nothing found.

**WARNING:** This product contains or produces a chemical known to the State of California to cause birth defects (or other reproductive harm) and cancer. (California Health & Safety Code 25249.5 *et seq.*)

**WARNING:** avoid breathing welding fumes and gases; they may dangerous to your health. Always use adequate ventilation and use appropriate personal protection equipment.

**CARCINOGENICITY:**

**WELDING FUMES** (not otherwise specified) are considered to be carcinogenic defined with no further categorization by *NIOSH* and *IARC*.

**GHS classification**

Hazard categories:

Acute toxicity: Acute Tox. 4

Serious eye damage/eye irritation: Eye Irrit. 2

Reproductive toxicity: Lact.

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazard Statements:

Harmful if swallowed.

Causes serious eye irritation.

May cause damage to organs through prolonged or repeated exposure.

Although this product does not require a hazard warning label in all countries, we recommend that the safety advice should be observed:

**Label elements**

Signal word: Warning

Pictograms: GHS07-GHS08



**Hazardous components**

fluorides

cryolite, trisodium hexafluoroaluminate

**Hazard statements**

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H362 May cause harm to breast-fed children.

H373 May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

P285 In case of inadequate ventilation wear respiratory protection.

P314 Get medical advice/attention if you feel unwell.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P501 Dispose of contents/container to waste treatment facility in accordance with local and national regulations.

**Additional advice on labeling**

As an article the product does not need to be labeled in accordance with EC-directives or respective national laws.

Before using this product, contact your doctor to determine if exposure to product or use of this product will aggravate your medical conditions.



**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**IMPORTANT:** This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered in Section 8. The chemicals or compounds subject to reporting under Title III, in Section 313, of the Superfund Amendments and Reauthorization Act (SARA) are marked by the symbol #.

**Exposure Limit (mg/m<sup>3</sup>)**

<b>INGREDIENTS</b>	<b>CAS NUMBER</b>	<b>OSHA PEL</b>	<b>ACGIH-TLV</b>	<b>Percent Ingredients (by weight)</b>
Aluminum #	7429-90-5	5	5	40 – 70
Potassium Chloride	7447-40-7	Not listed	Not listed	10 – 30
Sodium Chloride	7647-14-5	Not listed	Not listed	10 – 30
Lithium Hexafluoroaluminate	13821-20-0	2.5 (as F)	2.5 (as F)	7 – 13
Silicon	7440-21-3	5	10	3 – 10
Aluminum Fluoride	7784-18-1	2.5 (as F)	2.5 (as F)	1 – 5
Lithium Fluoride	7789-24-4	2.5 (as F)	2.5 (as F)	1 – 5
Potassium Hexafluoroaluminate	13775-52-5	2.5 (as F)	2.5 (as F)	1 – 5
Sodium Hexafluoroaluminate	15096-52-3	2.5 (as F)	2.5 (as F)	1 – 5

**CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS**

<b>INGREDIENTS</b>	<b>CAS NUMBER</b>	<b>EINECS NUMBER</b>	<b>Hazard Classification per ECD 67/548/EEC</b>
Aluminum #	7429-90-5	231-072-3	F; R11-15
Potassium Chloride	7447-40-7	231-211-8	No
Sodium Chloride	7647-14-5	231-598-3	No
Lithium Hexafluoroaluminate	13821-20-0	237-509-4	No
Silicon	7440-21-3	231-130-8	No
Aluminum Fluoride	7784-18-1	232-051-1	No
Lithium Fluoride	7789-24-4	232-152-0	No
Potassium Hexafluoroaluminate	13775-52-5	237-409-0	No
Sodium Hexafluoroaluminate	15096-52-3	239-148-8	T; R48/23/25 - Xn; R20/22 - N; R51-53

**SECTION 3 NOTES:** Exposure limits are subject to change. Contact ACGIH and OSHA for current values. See Section 16 for European Council Directive 67/548/EEC R-phrases

**SECTION 4: FIRST AID MEASURES**

**EMERGENCY & FIRST AID PROCEDURES:** Call for medical aid. Employ first aid techniques recommended by The American Red Cross.

**EYES:** Flush with a large amount of fresh water for at least 15 minutes to remove dusts or fumes. Get medical attention. For radiation burns due to arc flash, see physician.

**SKIN:** 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 for irritations that persist.

**INGESTION:** Seek medical attention.

**INHALATION:** Remove to fresh air. If breathing is difficult administer oxygen. If breathing has stopped, begin artificial respiration and obtain medical assistance immediately.

**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.

**GENERAL:** Move to fresh air and call for medical aid.

## SECTION 5: FIRE FIGHTING MEASURES

**Non-Flammable:** 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, nonflammable, non-explosive, and non-reactive.

**FLAMMABLE LIMITS IN AIR (% by volume): UPPER:** N/A **LOWER:**N/A

**FLASH POINT:** N/A

**AUTOIGNITION TEMPERATURE:** N/A

**NFPA HAZARD CLASSIFICATION:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Other:

**RATING UNDER NATIONAL FIRE PROTECTION 704:**

Health: 2                      Flammability: 0                      Reactivity: 0                      Protection:

**EXTINGUISHING MEDIA:** Use the extinguishing media recommended for the burning material and fire situation.

**SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained breathing apparatus as fume or vapors may be harmful.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Reasonably expected fume constituents of the fume could include complex oxides of aluminum, hydrogen fluoride (HF), fluorides

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**ACCIDENTAL RELEASE MEASURES:** Solid objects may be picked up and placed in a container. Wear protective clothing and make sure that the solid objects are at room temperature before handling.

**PERSONAL PRECAUTIONS:** Gloves should be worn when handling to prevent cuts.

**ENVIRONMENTAL PRECAUTIONS:** Do not flush residue into waterways.

## SECTION 7: HANDLING AND STORAGE

**HANDLING:** Handle with care to avoid cuts and to keep the wire from piercing the skin. Wear gloves when handling welding consumables. Avoid exposure to dust and do not ingest. Some individuals can develop and allergic reaction to certain materials. Keep all warning labels and identification labels on the product.

**STORAGE:** Keep material sealed and dry before use and do not remove product identification label or warning label. After using, keep remaining product sealed and dry and do not remove product identification label or warning label.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**



**Read and understand the manufacturer's instructions and precautionary label on this product.**

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more detail on the following:

**ENGINEERING CONTROLS:** Proper ventilation must be maintained.

**ARC RAYS** and **SPARKS** can injure eyes and burn skin. **ELECTRIC SHOCK** can kill! Wear correct hand, eye, head, and body protection.

**VENTILATION:** 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 the welder to keep their head out of the fumes. Monitor fume levels and do not exceed permissible exposure limits or values.

**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.

**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.

**PROTECTIVE CLOTHING:** 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.

**WORK HYGIENIC PRACTICES:** Do not eat or consume beverages in the work area.

**EXPOSURE GUIDELINES:** Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. When the electrode is consumed, fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. The fume and decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of materials in Section 3, plus those from the base metal, etc., as noted above. These components are virtually always present as complex oxides and not as metals (Characterization of Arc Welding Fume: American Welding Society). Reasonably expected fume constituents of the fume could include complex oxides of aluminum. The table below lists reasonably expected fumes that may be generated. Refer to Section 11 for more information about welding fumes.

<u>SUBSTANCE</u>	<u>CAS NUMBER</u>	<u>Exposure Limit (mg/m<sup>3</sup>)</u>	
		<u>OSHA PEL</u>	<u>ACGIH-TLV</u>
Aluminum fume (#)	None listed	N.E.	5
Nitric Oxide	10102-43-9	30	31

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may also be formed by radiation from the arc. Monitor fume levels. One recommended way to determine the composition and quantity of fumes and gas 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, F1.2, F1.3, F1.4, and F1.5, available from the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126).

Exposure limits are subject to change. Contact ACGIH, OSHA, NIOSH, and IARC for current values.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Solid appearance, non volatile, wire with a flux coating. No odor.

**MELTING POINT:** > 1000 °F (> 540 °C)

## SECTION 10: STABILITY AND REACTIVITY

**GENERAL:** These items are only intended for normal welding purposes.

**STABILITY:** Stable under normal conditions.

**HAZARDOUS POLYMERIZATION:** Will not occur

**REACTIVITY:** Contact with chemical substances like acids or strong bases could cause generation of gas.

### HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

Gaseous reaction products may include carbon monoxide and carbon dioxide. Reasonably expected fume constituents of the fume could include complex oxides of aluminum.

Refer to applicable national exposure limits for the fume compounds. 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. Other country exposure limits may be different and the appropriate country standards should be used.

## SECTION 11: TOXICOLOGICAL INFORMATION

Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure, and the electrode 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).

**EFFECTS OF OVEREXPOSURE** - Electric arc welding and brazing may create one or more of the following health hazards:

**FUMES AND GASES** can be dangerous to your health.

**PRIMARY ROUTES OF ENTRY** are the respiratory system. Other possible routes are eyes, ingestion, and/or skin contact.

**PREEXISTING** respiratory or allergic conditions may be aggravated in some individuals (i.e. asthma, emphysema).

### ACUTE TOXICITY:

**SHORT TERM (ACUTE) 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.

**FLUORIDES** - 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.

### CHRONIC TOXICITY:

**LONG TERM (CHRONIC) OVEREXPOSURE:** is believed by some investigators to affect pulmonary functions. **PRIMARY ROUTE OF ENTRY** is the respiratory system. **FLUORIDES** - 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.

Monitor fume levels and do not exceed permissible limits.

**SECTION 12: ECOLOGICAL INFORMATION**

**MATERIAL:** 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.

**CONTAMINATED PACKAGING:** Empty containers should be taken for local recycling, recovery, or waste disposal. Metals may be recycled.

**SECTION 13: DISPOSAL CONSIDERATION**

**WASTE DISPOSAL METHOD:** Dispose of any grinding dust and waste residues in accordance with EPA or local regulations. Plastic materials, cardboard, and wire can be re-cycled.

**U.S.A. RCRA:** 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.

**SECTION 14: TRANSPORTATION INFORMATION**

**DOMESTIC TRANSPORT REGULATIONS (USA):** DOT - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (CANADA):** TDG - not regulated.

**DOMESTIC TRANSPORT REGULATIONS (MEXICO):** MEX - not regulated.

**INTERNATIONAL TRANSPORT REGULATIONS:**

ICAO – not regulated

IATA – not regulated

IMDG / IMO – not regulated

**OTHER AGENCIES:** No international regulations or restrictions are applicable.

Handle with care to avoid damaging the product and keep product dry. Do not remove product identification label or warning label.

**SECTION 15: REGULATORY INFORMATION**

**Read and understand the manufacturer's instructions and precautionary label on this product.**

See American National Standard Z49.1, Safety in Welding and Cutting, published by the "American Welding Society," 550 N.W. LeJeune Road, Miami, FL 33126 and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 for more information. Before using this product, understand and your employer's safety practices.

**U.S. FEDERAL REGULATIONS:** Under the OSHA Hazard Communication Standard these products are considered as hazardous.

**U.S. EPA TSCA (TOXIC SUBSTANCE CONTROL ACT):** All constituents of these products are on the TSCA inventory list or are excluded from listing.

**CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)/SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):**

Reportable Quantities (RQ's) and/or Threshold Planning Quantities (TPQ's):

Ingredient name:	RQ (lb)	TPQ(lb)
Product is a solid solution in the form of a solid article	-	-

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to our Local Emergency Planning Committee.

**EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:**

The following metallic components are listed as SARA 313 "TOXIC CHEMICALS" and are potentially subject to annual SARA 313 reporting. See Section 3 for percent and if the ingredient is present.

INGREDIENT NAME	CAS NUMBER	DISCLOSURE THRESHOLD
Chromium & chromium compounds	7440-47-3	1.0 % de minimis concentration
Chromium VI	Not listed	0.1 % de minimis concentration
Barium compounds	Not listed	1.0 % de minimis concentration
Cobalt	7440-48-4	0.1 % de minimis concentration
Copper	7440-50-8	1.0 % de minimis concentration
Manganese	7439-96-5	1.0 % de minimis concentration
Nickel	7440-02-0	0.1 % de minimis concentration
Aluminum (fume or dust)	7429-90-5	1.0 % de minimis concentration
Silver	7440-22-4	1.0 % de minimis concentration

Package Labeling:

Additional advice on labeling

As a finished article the product does not need to be labeled in accordance with EC-directives or respective national laws.

International rules may vary and the appropriate regulations should be followed as defined by the country where the products are used.

**SECTION 16: OTHER INFORMATION**

This Safety Data Sheet has been revised due to modifications to several paragraphs and/or new format.

R-phrases

**Aluminum**

R11 : Highly flammable. (in pure powder form)

R15 : Contact with water liberates extremely flammable gases. (in pure powder form)

**Sodium Hexafluoroaluminate (Sodium Cryolite)**

R20/22 : Harmful by inhalation and if swallowed.

R48/23/25 : Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-Phrases

**Sodium Hexafluoroaluminate (Sodium Cryolite)**

S1/2 : Keep locked up and out of the reach of children.

S22 : Do not breathe dust.

S37 : Wear suitable gloves.

S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.

**SUPPLEMENTAL INFORMATION – DEFINITIONS:**

IARC: International Agency for the Research on Cancer  
NIOSH: National Institute for Occupational Safety and Health  
OSHA: U.S. Occupational Safety and Health Administration  
ACGIH: American Conference of Governmental Industrial Hygienists  
CAS: Chemical Abstracts Service Registry Number  
EINECS: European Inventory of Existing Chemical Substances

PEL: Permissible Exposure Limit  
NTP: National Toxicology Program  
TLV: Threshold Limit Value  
ECD: European Council Directive  
GHS: Globally Harmonized System

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