

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 120 Coil

**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

PRODUCT CLASSIFICATION: Solder

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Odorless solid. Chemically stable and inert. Does not pose a fire hazard. **Non-Flammable:** Flames used for brazing and soldering can ignite combustibles. Molten metal can burn skin. Refer to American National Standard Z49.1 for fire prevention during welding.

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: Inert foreign body hazard only.

SKIN: Prolonged contact may result in rashes/irritations due to drying of the skin and/or mechanical abrasion related to skin-to-clothing contact or skin-to-skin contact. May cause allergic skin reaction.

INGESTION: No adverse health effects anticipated by this route during proper industrial handling.

INHALATION: Exposure to fumes may aggravate pre-existing respiratory conditions.

ACUTE HEALTH HAZARDS: see Section 11

CHRONIC HEALTH HAZARDS: see Section 11

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 be 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.

Package Labeling:

The product does not require a hazard warning label in accordance with EC directives/the relevant national laws. Although this product does not require a hazard warning label, we recommend that the safety advice should be observed.

This mixture is not classified as dangerous according to Regulation (EC) No. 1272/2008.

CAUTION:

Limited evidence of carcinogenic effect (welding fumes).

May cause sensitization by skin contact

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

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.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

IMPORTANT: This section covers the materials from which these products are manufactured. Any of 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/m³)

<u>INGREDIENTS</u>	<u>CAS NUMBER</u>	<u>OSHA PEL</u>	<u>ACGIH-TLV</u>	<u>Percent Ingredients by Weight</u>
Tin	7440-31-5	2	2	60 – 100
Silver #	7440-22-4	0.01	0.01	1 – 5
Lead #	7439-92-1	0.05	0.05	0.025 max

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>
Tin	7440-31-5	231-141-8	No
Silver #	7440-22-4	231-131-3	No
Lead #	7439-92-1	231-100-4	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. Get medical attention.

SKIN: Wash affected area with soap and water to remove dust or particles. If rash develops, see a physician. Get medical attention 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.

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

SECTION 5: FIRE FIGHTING MEASURES

Flammable: No

NFPA HAZARD CLASSIFICATION:

Health: 1 Flammability: 0 Reactivity: 0 Other:

HMIS HAZARD CLASSIFICATION:

Health: 1 Flammability: 0 Reactivity: 0 Protection:

EXTINGUISHING MEDIA: In case of fire, use dry chemical, CO₂ or halon extinguisher.

SPECIAL FIRE FIGHTING PROCEDURES: In case of fire wear suitable respiratory equipment with positive air supply.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

HAZARDOUS DECOMPOSITION PRODUCTS: Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Avoid generating dust. Solder may be swept up and placed in a container for proper disposal.

PERSONAL PRECAUTIONS: If dust is present, use particle filter dust mask. Wear personal protective clothing and ensure adequate ventilation.

ENVIRONMENTAL PRECAUTIONS: Do not discharge powder residue into drains or bodies of water.

SECTION 7: HANDLING AND STORAGE

HANDLING: Avoid exposure to dust and do not ingest. Avoid contact with skin, eyes, and clothing. Some individuals can develop an allergic reaction to certain materials. 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

STORAGE: Keep material sealed and dry before use and store in a cool location and in the original labeled container. After using, keep remaining product sealed and dry and keep solder in original labeled container and store in a cool and dry location.

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.

ENGINEERING CONTROLS: Proper ventilation must be maintained.

VENTILATION: Use enough ventilation, local exhaust at the spray area, or both, to keep the fumes and gases below the TLV's in the workers breathing and the general area. Train the worker to keep his 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 soldering in a confined space or where local exhaust or ventilation does not keep exposure below the TLV's.

EYE PROTECTION: Wear safety glasses with side shields, face shield, and/or goggles.

PROTECTIVE CLOTHING: Wear gloves when using or prolonged contact with skin or repeated contact with skin is likely. Wear hand and body protection to prevent injury. See ANSI Z49.1 for further information.

OTHER PROTECTIVE EQUIPMENT: Full protective equipment normally used in soldering / brazing operation so as to prevent any contact. Review operations to avoid contact with hazardous gas, liquid, or solid. See also:

29CFR 1910.132 - 29 CFR 1910.140 Personal Protective Equipment
29 CFR 1910.251 - 29 CFR 1910.257 Welding, Cutting and Brazing

SKIN PROTECTION: Individuals having sensitive skin may find it beneficial to use a barrier cream or moisturizer when excessive or prolonged contact with skin is likely.

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.

EFFECTS OF OVEREXPOSURE - soldering may create one or more of the following health hazards:

Soldering fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being soldered, the process, procedure, and the solder 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 brazed (such as paint, plating, or galvanizing), the volume of the work area, the quality and the amount of ventilation, position of the worker'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).

When the material 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 powder, 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).

Gaseous reaction products may include carbon monoxide and carbon dioxide. 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 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).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid. No odor. **pH:** not applicable **Flash Point:** not applicable **Boiling Point:** not applicable

SECTION 10: STABILITY AND REACTIVITY

GENERAL: This item is only intended for use in soldering applications.

STABILITY: Product is chemically stable and non-reactive.

HAZARDOUS POLYMERIZATION: Will not occur.

MATERIALS TO AVOID: Strong acids and bases.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Metallic oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOS (not otherwise specified) is 5 mg/m³. The ACGIH 1999 preface states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section 8 for specific fume constituents that may modify the TLV.

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.

Molten metal can burn skin.

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

SHORT TERM (ACUTE) OVEREXPOSURE to soldering fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. **TIN & TIN COMPOUNDS** – can affect the body if inhaled or if they make contact with eyes or skin. Short term overexposure toxicity is low. **SILVER:** Overexposure to silver dusts or fumes may cause a permanent grayish pigmentation of the skin and can cause irritation of the skin and mucous membranes.

LONG TERM (CHRONIC) OVEREXPOSURE is believed by some investigators to affect pulmonary functions. Target organs are eyes, skin, and respiratory system. **TIN & TIN COMPOUNDS** – Long term overexposure effects are not known. **SILVER:** Chronic exposure via inhalation may cause argyria.

See Section 2 for any carcinogenic effects.

SECTION 12: ECOLOGICAL INFORMATION

Contaminated Packaging: Empty containers should be taken for local recycling, recovery, or waste disposal. Solder may be recycled. Do not flush solder into surface water or sanitary sewers.

SECTION 13: DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Dispose of any powder and waste residues in accordance with EPA or local regulations. Where possible, recycling is the preferred method of disposal.

Review U.S. Federal Hazardous Waste Regulations §40 CFR261 to determine if this is hazardous in USA. Please be advised that state and local requirements, or other country requirements, for waste disposal may be more restrictive or otherwise different than U.S. Federal regulations.

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. Keep product dry and in original labeled container.

SECTION 15: REGULATORY INFORMATION

Read and understand the manufacturer's Safety Data Sheet before handling or disposing of 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. EPA TSCA (TOXIC SUBSTANCE CONTROL ACT): All constituents of these products are on the TSCA inventory list or are excluded from listing.

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 if the ingredient is present and for percent.

<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

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

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 120 Flux

**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

PRODUCT CLASSIFICATION: Active Acid Solder Flux

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Target organ statement: DANGER: Causes severe burns to skin, eyes, and respiratory system. May be fatal if swallowed. Does not pose a fire hazard as shipped. **Non-Flammable:** However, heat and flames used during brazing and soldering can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding and soldering.

POTENTIAL HEALTH EFFECTS:

Swallowing May be fatal. Can cause damage to digestive system. Corrosive to mucous membranes
Skin absorption None currently known.
Inhalation Irritation to respiratory system. Coughing and sneezing. Existing lung disorders will be aggravated.
Skin Contact Dermatitis, possible chemical burns, corrosive to skin. Existing disorders will be aggravated.
Eye Contact Irritation to the eyes, tearing, burn of the eye surfaces, corrosive to the eyes, may cause blindness.

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

HAZARDS:

Indications of danger: Corrosive, Harmful, Dangerous for the environment

R-phrases:

Contact with acids liberates very toxic gas.

Harmful if swallowed.

Causes burns.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Although this product does not require a hazard warning label in all countries, we recommend the following GHS pictograms:



Danger

Corrosive

Environment

Respiratory

Toxic

Contains zinc chloride and hydrochloric acid

Hazard statements

H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H360FD May damage fertility. May damage the unborn child.

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.

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**.

See additional information in Section 3 for ingredients.

Before using this product, contact your doctor to determine if exposure to product or use of this product will aggravate your medical conditions. Spatter and flames from brazing and soldering may cause burns.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

IMPORTANT: This section covers the materials from which these products are manufactured. Any of 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/m³)

INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH -TLV	Percent Ingredients (by weight)
Zinc Chloride #	7646-85-7	1	1	< 45
Ammonium Chloride	12125-02-9	Not Listed	20	n/a
Hydrochloric Acid #	7647-01-0	7.0 (ceiling)	2.98 (ceiling)	< 1
Water	7732-18-5	Not listed	Not listed	n/a
Glycerin	56-81-5	5	10	n/a

CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS

INGREDIENTS	CAS NUMBER	EINECS NUMBER	Hazard Classification per ECD 67/548/EEC
Zinc Chloride #	7646-85-7	231-592-0	C; R34 - Xn; R22 - N; R50-53
Ammonium Chloride	12125-02-9	235-186-4	Xn; R22 - Xi; R36
Hydrochloric Acid #	7647-01-0	231-595-7	No
Water	7732-18-5	231-791-2	No
Glycerin	56-81-5	200-289-5	No

Remaining ingredients, if any, are classified and claimed as trade secret.

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 and inform them of the ingredients from Section 3. Employ first aid techniques recommended by The American Red Cross.

- Ingestion:** Immediately call a doctor or your poison control center. Inform them of the ingredients listed in Section 3. Swallowing flux may be fatal. Flux is corrosive to mucous membranes.
- Skin:** Promptly flush with water for 15 minutes to remove all residue. If rash or burn develops, consult a physician. Material is corrosive. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.
- Inhalation:** Remove to fresh air. If fumes are inhaled, call a physician.
- Eyes:** Flush with water for at least 15 minutes to remove all residue. Hold eyelids apart during irrigation. **Get immediate medical help - blindness may result.**

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: See Section 3 for ingredients.

SECTION 5: FIRE FIGHTING MEASURES

Non-Flammable These products as shipped are nonflammable, non-explosive, and non-reactive.

Flashpoint: Will not burn.

HMS HAZARD CLASSIFICATION:

Health: 3 Flammability: 0 Reactivity: 0 Special Hazard -----

EXTINGUISHING MEDIA: water, fog, or foam.

SPECIAL FIRE FIGHTING PROCEDURES: In case of fire, toxic fumes may be produced. Use of full protective equipment required.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dense smoke may be generated in a fire.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may release zinc oxide, zinc chloride, and hydrogen chloride fumes.

Refer to American National Standard Z49.1 for fire prevention during welding and soldering.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Do not discharge into the drain or bodies of water. Contain spill, absorb, sweep up and dispose of in accordance with Federal, State, and Local regulations.

PERSONAL PRECAUTIONS: Wear head, hand, and body protection that help to prevent injury; including rubber apron and rubber gloves.

ENVIRONMENTAL PRECAUTIONS: See section 12 and 13

SECTION 7: HANDLING AND STORAGE

HANDLING: Avoid exposure to product; do not ingest and avoid contact with eyes. Some individuals can develop an allergic reaction to certain materials. Do not eat, drink, or smoke when using this product. Wash thoroughly after using this product.

STORAGE: Keep material sealed and stored at room temperature. After opening keep remaining product sealed and in original labeled packaging. Store at ambient room temperature and do not store in steel containers.

Other precautions: Do NOT breathe fumes. Professionally wash contaminated clothing before reuse. Existing lung disorders will have increased toxic susceptibility.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

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

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

VENTILATION: Use enough ventilation, local exhaust at the work area, or both, to keep the fumes and gases below the TLV's / PEL's in the workers breathing zone and the general area. Train the worker to keep his head out of the fumes. Monitor fume levels and do not exceed permissible exposure limits or values. Adhere to environmental regulations for exhausts.

RESPIRATORY PROTECTION: Do NOT breathe fumes. If the workstation is not properly ventilated to exhaust all fumes and vapors, use a NIOSH approved respirator. Monitor fume levels and keep exposure below the TLV's.

EYE PROTECTION: Wear appropriate brazing / soldering chemical safety goggles. Do not wear contact lenses.

PROTECTIVE CLOTHING: Wear head, hand, and body protection that help to prevent injury; including rubber apron and rubber gloves. Remove and professionally wash contaminated clothing before a reuse. See ANSI Z49.1.

SKIN PROTECTION: Individuals having sensitive skin may find it beneficial to use a barrier cream or moisturizer when excessive or prolonged contact with skin is likely. Wash thoroughly after handling to remove all residue.

WORK HYGIENIC PRACTICES: Food and drink should not be consumed or tobacco products used, nor cosmetics applied in area where flux exposures are possible.

OTHER PROTECTIVE EQUIPMENT: Full protective equipment normally used in soldering operation so as to prevent any contact. Review operations to avoid contact with hazardous gas, liquid, or solid. See also:

29CFR 1910.132 - 29 CFR 1910.140 Personal Protective Equipment
29 CFR 1910.251 - 29 CFR 1910.257 Welding, Cutting and Brazing

WORK HYGIENIC PRACTICES: Professionally wash contaminated clothing before re-use. Food and drink should not be consumed or neither tobacco products used, nor cosmetics applied in area where flux exposures are possible.

EXPOSURE GUIDELINES Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. See Section 3 for ingredients.

Brazing and soldering fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or soldered, the process, procedure, and the filler material 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 brazed or soldered (such as paint, plating, etc.), the volume of the work area, the quality and the amount of ventilation, position of the worker'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).

When the material 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 rod, 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).

Gaseous reaction products may include carbon monoxide and carbon dioxide. Monitor fume levels.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Transparent liquid with no characteristic odor
Active temperature range: 200 °F – 600 °F (93 °C - 316 °C)
Flash point: not applicable
Solubility in water: High
Viscosity: not determined

pH-Value: not determined
Boiling point: not determined
Melting point: not applicable.
Specific gravity: 1.46
Evaporation Rate (butyl acetate = 1): <1

SECTION 10: STABILITY AND REACTIVITY

GENERAL: This item is only intended for use in soldering applications.

STABILITY: Product is chemically stable and non-reactive.

CONDITIONS TO AVOID: Flame and excess heat.

MATERIALS TO AVOID: Cyanide - may release toxic HCN. Sulfide - may release toxic hydrogen sulfide.

HAZARDOUS POLYMERIZATION: Will not occur.

REACTIVITY: None.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: zinc oxide.

SECTION 10 NOTES: In other countries the exposure limits listed in Section 3 may be different and the appropriate country standards should be used.

SECTION 11: TOXICOLOGICAL INFORMATION

Threshold Limit Value: The **ACGIH** recommended general limit for welding fume NOS (not otherwise specified) is 5 mg/m³. The **ACGIH 1999** preface states: "The **TLV-TWA** should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section V for specific fume constituents that may modify the **TLV**. Brazing/soldering vapors and fumes from some brazing/soldering fluxes may cause metal fume fever. Symptoms are similar to influenza type sickness, including chills, fever, head and muscle ache, tightness in chest, dryness of nose, mouth, muscular pain, nausea, and vomiting. Symptoms can appear within several hours of exposure and may last 6 - 24 hours. Consult a doctor immediately if any of these symptoms develop after using the product.

EFFECTS OF OVEREXPOSURE - brazing or soldering 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).

SHORT TERM (ACUTE) OVEREXPOSURE:

HYDROCHLORIC ACID: Contact with common metals produces hydrogen, which forms explosive mixtures in air. Corrosive liquid may cause permanent visual and tissue damage. Excessive inhalation may cause pulmonary edema, circulatory failure, respiratory system failure, and collapse. If ingested, may be fatal, severe burns to mouth, throat stomach, nausea and vomiting.

CHLORIDE COMPOUNDS: (zinc chloride, ammonium chloride): Overexposure may cause severe irritation or burns of the eyes and skin. Chloride compounds will form strong acids in the presence of water and may give off HCL gas in a fire. Ingestion will cause nausea.

LONG TERM (CHRONIC) OVEREXPOSURE:

EXPOSURE TO FLUX: Contact burns, irritation to skin (scarring), eyes, and respiratory system. Possible liver and kidney effects.

Monitor fume levels when using this product.

SECTION 12: ECOLOGICAL INFORMATION

CONTAMINATED PACKAGING: Empty containers should be taken for local recycling, recovery, or waste disposal. Contaminated flux should be disposed of in accordance with Federal, State, and Local regulations.

SPILLS: Contain spill, absorb, sweep up and dispose of in accordance with Federal, State, and Local regulations.

SECTION 13: DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Dispose of any waste residues in accordance with Federal, State, and Local regulations.

Review U.S. Federal Hazardous Waste Regulations §40 CFR261 to determine if this is hazardous in USA. Please be advised that state and local requirements, or other country requirements, for waste disposal may be more restrictive or otherwise different than U.S. Federal regulations. It is not possible to give this product a waste code number according to the European waste catalogue because only the intended use of the user consents the assignment of a specific code number.

SECTION 14: TRANSPORTATION INFORMATION

TRANSPORT REGULATIONS (USA):

Department of Transportation: Proper shipping name; Corrosive liquid, N.O.S. (Zinc Chloride, hydrochloric acid)

Hazard class: 8

ID & Pack. Group Number: UN 1760, PG III

ERG Guide Number: 60

Toxic Substances Control Act: all components of this compound are listed within the TSCA inventory.

SARA Title II Program: This product contains the following toxic chemicals subject to reporting requirements of EPCRA of 1986 and 40 CFR 372:

<u>Cemical name</u>	<u>CAS nr.</u>	<u>Concentration</u>
Zinc compounds:	N/E	< 45 %
Hydrochloric acid	7647-01-0	< 1.0 %

Other regulations may apply when shipping this material and may be in the process of change or update. Verify all applicable regulations prior to shipment either domestically, internationally via air, ground, or water.

This information must be included in all SDS that are copied and distributed for this material.

Handle with care to avoid damaging the product. Do not store near food materials.

SECTION 15: REGULATORY INFORMATION

Read and understand the manufacturer's Safety Data Sheet before handling or disposing of 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. EPA TSCA (TOXIC SUBSTANCE CONTROL ACT): All constituents of these products are on the TSCA inventory list or are excluded from listing.

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 to determine if the ingredient is present and for the percent.

<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

State Right to Know Programs:

Pennsylvania: All components are listed in PA code Title 34, Hazardous Substance List.

California: As currently manufactured this material contains no compounds subject to reporting and labeling requirements of Proposition 65.

Other regulations may apply when shipping this material and may be in the process of change or update. Verify all applicable regulations prior to shipment either domestically, internationally via air, ground, or water.

International rules may vary and the appropriate regulations should be followed as defined by the country where the product is 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

Zinc Chloride #

R22 : Harmful if swallowed.

R34 : Causes burns.

R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Ammonium Chloride

R22 : Harmful if swallowed.

R36 : Irritating to eyes.

S-phrases

Zinc Chloride #

- S1/2 : Keep locked up and out of the reach of children.
- S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 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).
- S60 : This material and its container must be disposed of as hazardous waste.
- S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.

Ammonium Chloride

- S2 : Keep out of the reach of children.
- S22 : Do not breathe dust.

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.