

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 Slik Sil PF (formerly MG 850)

**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: Brazing Flux

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Chemically stable and inert. Does not pose a fire hazard as shipped. **Non-Flammable:** Flames used for brazing can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention during welding. In case of fire, use NIOSH/MSHA self contained breathing apparatus.

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

POTENTIAL HEALTH EFFECTS:

EYES: May cause eye irritation, burns, and eye damage.

SKIN: Spatter and flames from brazing may cause burns. Flux may cause skin burns. This material may be absorbed through the skin resulting in systemic poisoning.

INGESTION: Danger of serious damage to health if swallowed. May cause abdominal pain, diarrhea, vomiting, excess salivation, thirst, perspiration and painful spasms of the limbs. Large amounts may be fatal. If swallowed, do NOT induce vomiting.

INHALATION: Danger of serious damage to health by prolonged exposure through inhalation. Symptoms include nasal discharge and nosebleeds, coughing, sore throat and labor breathing.

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.

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

Pictograms: GHS08



Boric acid

Hazard categories

Reproductive toxicity: Repr. Cat. 1B

Hazard Statements:

R60 May impair fertility

R61 May cause harm to the unborn child

Safety Advice

S53 Avoid exposure - obtain special instructions before use.

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

Pictograms: GHS05- GHS06 (Potassium Bifluoride)



Potassium Bifluoride C \geq 10,0 %

Hazard categories

Skin Corr. 1B; H314

R25: Toxic if swallowed

R34 Causes burns

Hazard statements

H301 Toxic if swallowed

H314 Causes severe skin burns and eye damage.

Safety Advice

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

S22: Do not breath dust

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S37: Wear suitable gloves

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

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/vapours/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. Spatter and flames from brazing may cause burns and start fires.

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 #.

INGREDIENTS	CAS NUMBER	Exposure Limit (mg/m ³)		Percent Ingredients (by Weight)
		OSHA PEL	ACGIH TLV	
Boric Acid	10043-35-3	Not listed	15	30 – 45
Potassium Tetra borate	1332-77-0	2.5	1	20 – 35
Potassium Bifluoride	7789-29-9	2.5 (as F)	2.5 (as F)	10 – 20
Potassium Pentaborate	11128-29-3	5	10	5 – 10
Sodium Dodecyl Sulfate	151-21-3	2.5	2.5	1 – 4
Water	7732-18-5	Not listed	Not listed	Balance

CAS / EINECS NUMBER / HAZARD CLASSIFICATION FOR ABOVE INGREDIENTS

INGREDIENTS	CAS NUMBER	EINECS NUMBER	Hazard Classification per ECD 67/548/EEC
Boric Acid	10043-35-3	233-139-2	Boric acid C ≥ 5.5 % Repr.Cat. 2; R60-61
Potassium Tetraborate	12045-78-2	215-575-5	Not listed
Potassium Bifluoride	7789-29-9	232-156-2	C ≥ 10 % T; R25
Potassium Pentaborate	11128-29-3	234-371-7	Not listed
Sodium Dodecyl Sulfate	151-21-3	205-788-1	Not listed
Water	7732-18-5	231-791-2	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

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.

EYES: Flush with a large amount of fresh water for at least 30 minutes. Do NOT use Zephiran Chloride solution on eyes. Call a physician and get medical attention.

SKIN: Wash affected area with soap and water for at least 15 minutes and remove any contaminated clothing. Pay attention to skin under the nails. If rash develops, see a physician. Get medical attention for irritations that persist.

INGESTION: Do not induce vomiting. Seek medical attention immediately.

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.

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

SECTION 5: FIRE FIGHTING MEASURES

Non-Flammable These products as shipped are non-hazardous, nonflammable, non-explosive, and non-reactive. In case of fire, Use NIOSH/MSHA self contained breathing apparatus.

NFPA HAZARD CLASSIFICATION:

Health: 3 Flammability: 0 Reactivity: 0

Other: In case of fire, use NIOSH/MSHA self contained breathing apparatus.

HMIS HAZARD CLASSIFICATION:

Health: 3 Flammability: 0 Reactivity: 0

Protection: In case of fire, use NIOSH/MSHA self contained breathing apparatus.

EXTINGUISHING MEDIA: water, dry chemical extinguisher, CO₂

SPECIAL FIRE FIGHTING PROCEDURES: Low pressure extinguisher. In case of fire, use NIOSH/MSHA self contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

HAZARDOUS DECOMPOSITION PRODUCTS: Toxic oxides are emitted when heated above the melting point. Emits oxides of boron and potassium when heated to decomposition.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Control spill, contain spill source and ventilate the area. Soak up spill using an absorbent. Scoop up the material into a suitable container for proper disposal.

PERSONAL PRECAUTIONS: Wear full protective clothing, rubber or Neoprene gloves when skin contact with the hands is likely and chemical safety goggles.

ENVIRONMENTAL PRECAUTIONS: Do not flush residue into waterways. Flush area with water to a chemical sewer.

SECTION 7: HANDLING AND STORAGE

HANDLING: Avoid exposure to flux, 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 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. Store away from incompatible materials.

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 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: Do NOT breathe fumes. Use respirable fume respirator or air supplied respirator when brazing in a confined space or where local exhaust or ventilation does not keep exposure below the TLV's.

EYE PROTECTION: Wear appropriate brazing glasses with side shield. Do not wear contact lenses.

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. Professionally wash contaminated clothing before re-use. See ANSI Z49.1.
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, along with rubber gloves. 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.

EXPOSURE GUIDELINES: Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits.

EFFECTS OF OVEREXPOSURE - 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 and/or skin contact.

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

Brazing fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed, the process, procedure, and the rod 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 flux, 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).

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).

Gaseous reaction products may include carbon monoxide and carbon dioxide.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: flux paste, no characteristic odor.

pH-Value: 8.8 - 9.1

Flash Point: not applicable

Specific gravity (Water = 1): 1.49

Solubility in water: 100 %

Melting point: 791 °F (422 °C)

SECTION 10: STABILITY AND REACTIVITY

GENERAL: These items are only intended for brazing application.

STABILITY: Product is chemically stable and non-reactive.

INCOMPATIBILITY / CONDITIONS TO AVOID: Keep product away from high heat (435° F / 225 °C) and moisture.

MATERIALS TO AVOID: Strong acids and alkalis.

HAZARDOUS POLYMERIZATION: Will not occur.

REACTIVITY: None.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Boron oxide, boron trifluoride, corrosive fluoride compounds, and/or hydrogen fluoride. Fumes can be dangerous to your health. See Section 11

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 8 for specific fume constituents that may modify the TLV. Brazing/welding vapors and fumes from brazing/welding may cause metal fume fever. Symptoms can appear 4 to 12 hours after (headache, dizziness, dryness, cough, nausea and fever).

SHORT TERM (ACUTE) OVEREXPOSURE: FUMES AND GASES can be dangerous to your health. Primary routes of entry are the respiratory system, eyes, ingestion, and/or skin. Preexisting respiratory or allergic conditions may be aggravated in some individuals. Brazing/welding vapors and fumes from brazing/welding may cause metal fumes fever. Symptoms can appear 4 to 12 hours after (headache, dizziness, dryness, cough, nausea and fever) May cause irritation of respiratory tract. Repeated or prolonged exposure may cause irritation of eyes and skin. Fumes may result in discomfort such as sneezing, and coughing, and should be considered as an irritant to the respiratory system. Existing lung disorders may be aggravated. If swallowed, nausea, vomiting, and diarrhea may result. Skin contact may result in mild dermatitis or irritation, with existing skin disorders possibly being aggravated. Upon eye contact, mild irritation to eye surfaces may result, and existing eye disorders possibly being aggravated.

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.

LONG TERM (CHRONIC EXPOSURE): May result in coughing, erythema, and nausea. Boric acid can accumulate in the body (brain, bone) with repeated exposure. Prolonged or repeated skin contact may cause dermatitis. May cause borism characterized by dry skin, skin eruptions, and gastric disturbances. If absorbed through skin it may affect behavior, sense organs, metabolism, the gastrointestinal tract, and the respiratory tract (respiratory depression). Prolonged absorption of **BORON COMPOUNDS** may cause mild gastrointestinal irritation, loss of appetite, nausea, and erythematous rash. Dryness of skin and mucous membranes, loss of hair, conjunctivitis, and kidney injury have also been observed. Reproductive effects have been observed in laboratory animals. 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. Exposure to fluorides may cause skin rash.

Avoid direct inhalation of fumes during heating and use. Monitor fume levels.

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 rod and waste residues in accordance with EPA or 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. EPA waste D002 - CORROSIVE.

SECTION 14: TRANSPORTATION INFORMATION

DOT: DOMESTIC TRANSPORT REGULATIONS (USA):

ID: UN3266

Department of Transportation (Proper shipping name): Corrosive Liquid, basic, inorganic, n.o.s. (Contains Potassium Bifluoride)

Packing Group Number: PG III

Hazard class: 8

Hazard label: Corrosive

NOTE: Consumer quantity, ORM-D, in inner packagings not over 4L (1 Gal) net capacity for liquids, packed in strong outer packagings). Handle with care to avoid damaging the product. Do not remove product identification label or warning label. Keep material away from heat. Do not store near food materials. Store at ambient temperature (do not freeze).

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. 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

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 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

R-phrases & S-phrases

Boric acid C ≥ 5,5 %

R60 : May impair fertility.

R61 : May cause harm to the unborn child.

S53 : Avoid exposure - obtain special instructions before use.

Potassium Bifluoride C ≥ 10,0 %

T25: Toxic if swallowed

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

S22: Do not breath dust

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S37: Wear suitable gloves

S:45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible)

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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