



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: US FORGE - Acid Core Solder (Contains LEAD)
DESCRIPTION: Tin (Sn)/Lead (Pb) Solder
PART NUMBERS: 03010 (25Sn/75Pb), 03020 (30Sn/70Pb), 03023 (40Sn/60Pb)

**MANUFACTURER/
SUPPLIER:** US FORGE
N94 W14355 GARWIN MACE DRIVE
MENOMONEE FALLS, WI 53051 USA

TELEPHONE NUMBER (262) 255-5157 or Toll Free (800) 343-3758
FAX NUMBER: (262) 255-2374
US FORGE WEBSITE: www.us-forge.com

PRODUCT CLASSIFICATION: Acid Core Solder

SECTION 2: HAZARDS IDENTIFICATION

WARNING: Contains LEAD

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: Dust or fume will be an irritant.
SKIN: No adverse health effects anticipated by this route during proper industrial handling.
INGESTION: Ingestion of dust or fume must be avoided. Lead is toxic and cumulative, affecting the kidneys, reproductive system and nervous system. Symptoms of chronic overexposure include anemia, insomnia, weakness, irritability, constipation and stomach pains. Antimony is toxic and dust or fume can cause nasal septal ulceration and stomach lining irritation.
INHALATION: Inhalation of dust and fumes must be avoided. Irritation of nose and bronchial tracts may occur as well as effects due to absorption of lead, etc. in blood stream. 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 dangerous to your health. Always use adequate ventilation and use appropriate personal protection equipment.

CARCINOGENICITY

LEAD - is listed as being carcinogenic to humans by IARC.

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



Contains: Lead

LEAD (Pb)

Hazard statements

- H302 Harmful if swallowed
- H361 Suspected of damaging fertility or the unborn child
- H373 May cause damage to organs through prolonged or repeated exposure
- H413 May cause long lasting harmful effects to aquatic life

Precautionary statements

- P202 Do not handle until all safety precautions have been read and understood
- P264 Wash thoroughly after handling
- P260 Do not breathe dust/fume/gas/vapors/spray
- P273 Avoid release to the environment
- P281 Use personal protective equipment as required
- P270 Do not eat, drink or smoke when using this product
- P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do - and continue rinsing
- P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
- P302+P352 IF ON SKIN: Wash with plenty of soap and water
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations

This mixture is classified as dangerous according to Regulation (EC) No. 1272/2008.

Lead is considered moderate to high toxicity. In the wire form as solid it is unlikely to be considered a health hazard. However, lead fumes may be produced when the material is melted and lead will be present in any gross dust. Lead can lead to possible systemic effects and long-term effects as it is considered a cumulative poison.

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

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)

INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH-TLV	Percent Ingredients by Weight
Lead #	7439-92-1	0.05	0.05	60 – 75
Tin	7440-31-5	2	2	25 – 40
Acid Core				
Azelaic Acid	123-99-9	N.E.	N.E.	< 1
Ethylenediamine Dihydrochloride	333-18-6	N.E.	50 ppm	< 1
Ethylamine Hydrochloride	557-66-4	N.E.	N.E.	< 1
Succinimide	123-56-8	N.E.	N.E.	< 1
Urea	57-13-6	N.E.	N.E.	< 1

N.E. = None Established ppm = parts per million

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

INGREDIENTS	CAS NUMBER	EINECS NUMBER	Hazard Classification per ECD 67/548/EEC
Lead #	7439-92-1	231-100-4	R61 ; R20/22 ;R33 R62
Tin	7440-31-5	231-141-8	No
Acid Core			
Azelaic Acid	123-99-9	204-669-1	No
Ethylenediamine Dihydrochloride	333-18-6	206-369-6	No
Ethylamine Hydrochloride	557-66-4	209-182-8	No
Succinimide	123-56-8	204-635-6	No
Urea	57-13-6	200-315-5	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: Call poison control center. 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: 2 Flammability: 0 Reactivity: 0 Other:

HMS HAZARD CLASSIFICATION:

Health: 2 Flammability: 0 Reactivity: 0 Protection:

EXTINGUISHING MEDIA: Use dry foam, sand, CO2. Special powder for metal fires Do **NOT** use water.

SPECIAL FIRE FIGHTING PROCEDURES: In case of fire wear self contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: Poisonous lead fumes, carbon monoxide, carbon dioxide and nitrogen oxides may be generated.

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 flush residue into waterways.

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 and allergic reaction to certain materials.

STORAGE: Keep material sealed and dry before use and store a cool location and in the original labeled container. After using, crimp end and keep remaining product sealed and dry and keep solder in original labeled container and store in a cool and dry location. Keep product away from moisture and excessive heat during storage.

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.

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).

In other countries the exposure limits listed above may be different and the appropriate country exposure limits should be used.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid. No odor.

pH: not applicable

Melting Point: 360-620 °F depending on composition

Flash 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: Oxidizing agents and sodium azide.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon dioxide, carbon monoxide generated on heating. Toxic lead fumes will form at high temperatures. Contact with sodium azide generates lead azide – a detonating compound. Dust should be kept at a minimum.

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 and/or skin contact.

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. Molten metal may splash, wear protective safety goggles. Skin contact may cause local irritation. **ELEMENTAL TIN:** is not generally considered toxic. Dust of tin oxides had caused a pneumoconiosis which is relatively benign. **LEAD** - It is unlikely that exposure to this material would result in acute illness. However, if symptoms are present, the individual should be removed from exposure and a physician consulted. Mode of entry is by inhalation, ingestion via food, fingers or tobacco. Lead is a cumulative poison. Lead adversely affects the blood cells. Ingestion of dust or fume must be avoided.

LONG TERM (CHRONIC) OVEREXPOSURE is believed by some investigators to affect pulmonary functions. Target organs are eyes, skin, and respiratory system. Primary route of entry is by inhalation, ingestion via food, fingers or tobacco. **TIN & TIN COMPOUNDS** – Tin is not regarded as toxic, but excessive exposure can cause fever, nausea, stomach cramps or diarrhea. **LEAD** - Symptoms of chronic overexposure to high levels of airborne or ingested lead include anemia, insomnia, weakness, irritability, constipation and stomach pains. Lead is a cumulative poison. Lead poisoning is one of the commonest occupational diseases. Diseases of the blood and blood-forming organs, kidneys, nervous systems, and possibly reproductive systems may be aggravated by overexposure to lead. Exposure to lead may result in injury to a developing fetus. Occasional blood testing for lead level should be done routinely for individuals who are chronically exposed to lead.

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 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 safe use of product when used in welding applications.

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
Lead	7439-92-1	0.1 % 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 US Forge, USA

R-Phrases:

LEAD

- R61 May cause harm to an unborn child.
- R20/22 Harmful by inhalation and if swallowed.
- R33 Danger of cumulative effects.
- R62 Possible risk of impaired fertility.

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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