





SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Name: Solder Brite 50/50
Product Code: 32806
Product Use: Flux and solder combination
Manufacturer: LA-CO Industries, Inc.
 1201 Pratt Boulevard
 Elk Grove Village, IL.
 60007-5746
 E-mail Contact: customer_service@laco.com
Phone Number: (847) 956-7600
Fax: (847) 956-9885
24-hour Emergency: CHEMTREC: (800) 424-9300

Section 2: Hazards Identification

Protective Clothing	NFPA Rating (USA)	EC Classification	WHMIS (Canada)	Transportation
Not required for normal use		 Toxic  Dangerous for the environment	 D2A	Not regulated

Emergency Overview: May cause harm to the unborn child. Also, harmful by inhalation and if swallowed. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Possible risk of impaired fertility.

Appearance, Color and Odor: Thick gray colored paste.

USA: This is a hazardous material as defined by 29 CFR 1910.1200, OSHA Hazard Communication Standard.

Canada: This is a controlled product under WHMIS.

European Communities (EC): This product is classified as dangerous according to Directive 1999/45/EC and its amendments. Classification: Toxic; Dangerous for the environment.

Potential Health Effects:

ACUTE (short term): see Section 8 for exposure controls

While this preparation contains hazardous substances, as listed in Section 3, these substances are contained in a polymer medium; exposure to hazardous substances is not expected to occur when the product is used for its intended purpose. Workers should follow procedures for safe use of soldering materials to avoid exposure to hazardous substances.

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Section 2: Hazards Identification (continued)

Relevant Route(s) of Exposure: Inhalation, Skin contact.

Inhalation: Fumes and smoke generated during soldering may cause irritation to the mucous membranes and respiratory system. Fumes may contain lead compounds. Inhalation of airborne lead compounds is harmful. Symptoms may include headache, fatigue, nausea, abdominal cramps, and joint pain. Other health effects such as a metallic taste in the mouth, vomiting and constipation or bloody diarrhea may occur with extreme over-exposure.

Ingestion: Not an applicable route of occupational exposure.

Product may be harmful if swallowed. Symptoms of ingestion of a very large dose over a short time period may include headache, fatigue, nausea, abdominal cramps, and joint pain. Other health effects such as a metallic taste in the mouth, vomiting and constipation or bloody diarrhea may occur.

Skin: Molten product can cause thermal burns. Contact with flux or fumes may cause irritation.

Eye: Fumes and smoke generated during soldering may cause irritation.

CHRONIC (long term): see Section 11 for additional toxicological data

Inorganic lead compounds, including elemental lead, can be harmful following prolonged exposure by inhalation or ingestion. Symptoms of overexposure to lead compounds include fatigue, sleep disturbance, headache, aching bones and muscles, constipation, abdominal pain and decreased appetite. High concentrations of lead in the body can cause adverse effects to the central nervous system, gastrointestinal disturbances, anemia, kidney dysfunction and possible reproductive effects.

Medical Conditions Aggravated by Exposure: Skin contact may aggravate an existing dermatitis.

Interactions With Other Chemicals: Not available

Potential Environmental Effects: Lead compounds are dangerous for the environment; prevent release of this material into the environment.

Section 3: Composition / Information on Ingredients

Hazardous/Dangerous Ingredients:

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt.%</u>	<u>EINECS / ELINCS</u>	<u>Symbol</u>	<u>Risk Phrases</u>
Hydrochloric acid	7647-01-0	1 - 5	231-595-7	C, Xi	R34, R37
2-aminoethanol MEA	141-43-5	3 - 7	205-483-3	Xn, C	R20/21/22; R34
Ammonium Chloride	12125-02-9	1 - 5	235-186-4	Xn, Xi	R22, R36
Lead	7439-92-1	15 - 25	231-100-4 Annex 1 Index # 082-001-00-6	T, N	Repr. Cat. 1; R61 Repr. Cat. 3; R62 R20/22 R33 R50-53
Tin	7440-31-5	10 - 15	231-141-8	None*	None*
Antimony	7440-36-0	0.1 - 0.3	231-146-5	Xn; N	R20/22; R51-53

* This substance is not classified in the Annex I of Directive 67/548/EEC.

Note: See Section 8 of this SDS for exposure limit data for these ingredients.
 See Section 16 for the full text of the R-phrases above.

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Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air and obtain medical advice.
Eye Contact:	No health effects expected. If material becomes lodged in the eye, do not allow victim to rub eye(s). Let the eye(s) water naturally for a few minutes. Have victim look right and left, then up and down. If particle does not dislodge, flush with lukewarm, gently flowing water for 5 minutes or until removed, while holding eyelid(s) open. If irritation occurs, obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye.
Skin Contact:	No health effects expected. If irritation does occur, flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
Ingestion:	If irritation or discomfort occurs, obtain medical advice immediately.

Section 5: Fire Fighting Measures

Flammable Properties:	The paste can burn if involved in a fire but does not ignite readily.
Suitable extinguishing Media:	Use extinguishing media appropriate for the surrounding fire (e.g. water spray, dry chemical, carbon dioxide or foam)
Unsuitable extinguishing Media:	Not available
Explosion Data:	
Sensitivity to Mechanical Impact:	Not applicable
Sensitivity to Static Discharge:	Not applicable
Specific Hazards arising from the Chemical:	During a fire, products of combustion may include carbon dioxide, carbon monoxide, hydrochloric acid fumes, ammonia, smoke and irritating and toxic fumes. When heated in air or if involved in a fire, product may form highly toxic lead oxide fumes.
Protective Equipment and precautions for firefighters:	Lead and its decomposition products are hazardous to health. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. A full-body encapsulating chemical resistant suit with an approved positive pressure self-contained breathing apparatus may be necessary.
NFPA	
Health:	3
Flammability:	1
Instability:	0

Section 6: Accidental Release Measures

Personal Precautions:	Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment as indicated in Section 8.
Environmental Precautions:	Minimize entry of material into sewers and drainage systems.
Methods for Containment:	Stop the spill immediately.
Methods for Clean-up:	Scrape or scoop product for re-use or place in a secure labeled container for disposal. Clean up spills immediately. Flush the spill area with water. Prevent water runoff from entering drains, sewers and natural water streams.

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Section 7: Handling and Storage

Handling: Avoid contact with eyes and skin; do not breathe in fumes. Wash thoroughly with detergent and water after handling, before eating, drinking, smoking or using the toilet. Remove contaminated clothing and wash before reuse. Keep out of reach of children.

Storage: Store in a cool, dry area, out of direct sunlight and away from heat, flames and ignition sources. Keep containers closed when not in use. Do not store above 37.5°C (100°F).

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines

Consult local authorities for acceptable exposure limits.

<u>Ingredient</u>	<u>ACGIH TLV (8-hr. TWA)</u>	<u>U.S. OSHA PEL (8-hr. TWA)</u>	<u>Ontario (Canada) TWAEV</u>	<u>UK OEL (8-hr. TWA)</u>
Hydrochloric acid	2 ppm CEL	5 ppm (7 mg/m ³) CEL	2 ppm CEV	1 ppm (2 mg/m ³); 5 ppm (8 mg/m ³) STEL
2-aminoethanol	3 ppm 6 ppm STEL	3 ppm (6 mg/m ³)	3 ppm (7.5 mg/m ³); 6 ppm (15 mg/m ³) STEV	1 ppm (2.5 mg/m ³); 3 ppm (7.6 mg/m ³) STEL
Ammonium Chloride	10 mg/m ³ (fume); 20 mg/m ³ STEL	Not established	10 mg/m ³ ; 20 mg/m ³ STEV	10 mg/m ³ (fume); 20 mg/m ³ STEL
Lead	0.05 BEI	0.05	0.05 Designated Substance Regulation	0.15 0.45 STEL
Tin	2	2	2	2 4 STEL Tin compounds, inorganic as Sn

CEL = Ceiling Exposure Limit
 CEV = Ceiling Exposure Value
 STEV = Short Term Exposure Value
 STEL = Short Term Exposure Limit

Exposure Controls

Engineering Controls: Not required for normal use.
 If product is overheated or if dust is generated, provide adequate ventilation to keep airborne concentrations below the exposure limits listed above.

Personal Protection:

Eye/Face Protection: Not required for normal use. If fumes are generated during use, wear chemical safety glasses or goggles.

Skin Protection: Not required for normal use. Wear appropriate gloves to protect the skin from thermal burns when necessary.

Respiratory Protection: If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protection equipment including approved respiratory protection. Have appropriate equipment available for use in emergencies such as spills or fire.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 529 or Canadian Standards Association (CSA) Standard Z94.4-02 must be followed whenever workplace conditions warrant a respirator's use.

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Section 8: Exposure Controls/Personal Protection, continued

Other Protective Equipment: Not required for normal use.

General Hygiene Measures: Avoid breathing fumes generated from heated product. Do not eat, drink or smoke in work areas. Wash hands after handling this product. Remove contaminated clothing promptly. Keep contaminated clothing in closed containers. Discard or launder before rewearing. Inform laundry personnel of contaminant's hazards. When handling on a large scale, do not wear work clothing home. A double locker-shower setup is usually required.

Section 9: Physical and Chemical Properties

Physical State:	Paste	Flash Point & method:	Not applicable
Appearance, Color and Odor:	Viscous paste; gray; odorless	Autoignition Temperature:	Not applicable
Odor Threshold:	Not applicable	Flammability Limits in Air:	Not applicable
pH:	Not applicable	Vapor Pressure:	Not applicable
Specific Gravity: (water = 1)	Not available	Vapor Density: (Air = 1)	Not applicable
Partition coefficient: (n-octanol/water)	Not available	Evaporation Rate: (n-Butyl Acetate = 1)	Not applicable
Solubility:	Partly soluble in water.	Boiling Point/Range:	Not available
Viscosity:	Not available	Melting Point:	Not available
Decomposition Temperature:	Not available	VOC Content:	0% w/w

Section 10: Stability and Reactivity

Chemical Stability: Stable at normal room temperature.

Conditions to Avoid: Avoid extreme heat and open flames.

Incompatible Materials: Incompatible with Oxidizers, Hydrogen peroxide, sodium, potassium, chlorine, turpentine, strong acids.

Hazardous Decomposition Products: Not available

Possibility of Hazardous Reactions: Not available

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Section 11: Toxicological Information

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u> (mg/kg)	<u>LD₅₀ Dermal</u> (mg/kg)	<u>LC₅₀ Inhalation</u> (4 hrs.)
Hydrochloric acid	238 - 277 (female rat) 700 (rat)	> 5 010 (rabbit)	544 ppm (mouse) 1 562 ppm (rat)
2-aminoethanol	1 720 (rat)	1 000 (rabbit)	1 210 mg/m ³ (mouse)
Ammonium Chloride	1 300 (mouse) 1 650 (rat)	Not available	Not available
Lead	Not available	Not available	Not available
Tin	Not available	Not available	Not available

Chronic Toxicity Data

Carcinogenicity:

The International Agency for Research on Cancer (IARC) has determined that the evidence for carcinogenicity to animals is sufficient for inorganic lead compounds (Group 2A). This conclusion is based on studies with lead acetate and other lead salts.

The American Conference of Governmental Industrial Hygienists (ACGIH) has designated this chemical as an animal carcinogen (A3).

The US National Toxicology Program (NTP) has listed this chemical as reasonably anticipated to be a human carcinogen.

OSHA lists Lead as a carcinogen.

<u>Ingredient</u>	<u>ACGIH</u>	<u>IARC</u>	<u>NTP</u>
Hydrochloric acid	A4	Group 3	Not listed
2-aminoethanol	Not listed	Not listed	Not listed
Ammonium Chloride	Not listed	Not listed	Not listed
Inorganic lead compounds	A3	Group 2A	Reasonably anticipated
Tin	Not listed	Not listed	Not listed

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC: (International Agency for Research on Cancer)

NTP: (National Toxicology Program)

Irritation: Under expected conditions of use, this preparation is not expected to cause irritation to eyes, respiratory system or skin. Overexposure to fumes may cause irritation to the eyes and respiratory system.

Corrosivity: Not available

Sensitization: Not available

Neurological Effects: Long-term overexposure to lead and lead compounds causes adverse neurological effects. Symptoms typically include forgetfulness, irritability, tiredness, headache, fatigue, impotence, decreased libido (sexual drive), dizziness, and depression.
 Repeated exposure to inorganic lead compounds can affect behavior.
 Disturbances to vision have been observed in workers after months to years of overexposure to inorganic lead compounds. Changes in hearing ability have also been reported in lead-exposed workers, particularly those with moderate to high exposure.
 Decreased hand dexterity (measured by finger tapping speed) has been reported in workers with low to moderate exposure to inorganic lead. Footdrop and wristdrop (an inability to hold the foot or hand extended) commonly occur with higher exposures.

Genetic Effects: The mutagenicity of elemental lead has not been investigated in animal or cell systems. In studies with lead acetate, positive results were reported for tests with somatic and germ cells of animals exposed by relevant routes of exposure. Therefore, lead is considered mutagenic.

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Section 11: Toxicological Information (continued)

- Reproductive Effects:** Inorganic lead exposure during pregnancy has historically been associated with significant harmful effects on pregnancy, including increased miscarriages and stillbirths. Significant harmful effects have been reported in the male reproductive system following low to moderate exposures.
- Developmental Effects:** Several non-occupational studies indicate that low to moderate exposure to lead during pregnancy and in early childhood, can produce harmful effects on neurobehavioral development and IQ, a measure of intelligence.
- Target Organ Effects:** GI tract, CNS, kidneys, blood, gingival tissue, eyes

Section 12: Ecological Information

- Ecotoxicity:** Processing or extended exposure in aquatic environments and soil may result in the release of lead and tin compounds. Lead is very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Persistence:** Not available for this product.
- Bioaccumulation:** Lead and lead compounds are known to bioaccumulate.
- Mobility:** Not available

Section 13: Disposal Considerations

- Waste Disposal Method:** Do NOT dump into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage. Refer to disposal requirements for preparations containing tin and lead. The conditions of use, storage and disposal of this product are beyond our control and may be beyond our knowledge. For this and other reasons, LA-CO Industries, Inc. does not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.
- USA:** Dispose of in accordance with local, state and federal laws and regulations.
- Canada:** Dispose of in accordance with local, provincial and federal laws and regulations.
- EC:** Waste must be disposed of in accordance with relevant EC Directives and national, regional and local environmental control regulations. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

Section 14: Transport Information

- U.S. Hazardous Materials Regulation (DOT 49CFR):** Not regulated, this product conforms to small quantity exception of DOT 49CFR173.4. RQ of lead 10 lb (4.54 kg).
- Canadian Transportation of Dangerous Goods (TDG):** Not regulated
- ADR/RID:** Not regulated
- IMDG:** Not regulated
- Marine Pollutants:** Lead compound, soluble, N.O.S.
- ICAO/IATA:** Not regulated

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Section 15: Regulatory Information

USA

TSCA Status: All ingredients in the product are listed on the TSCA inventory.

SARA Title III

Sec. 302/304: None

Sec. 311/312: Chronic health

Sec. 313: Lead 0.1% de minimis

CERCLA RQ: Lead 10 lb (4.54 kg); Hydrochloric acid 5 000 lbs (2 270 kg); Ammonium Chloride 5 000 lbs (2 270 kg)

California Prop 65: This product contains a chemical known to the State of California to cause cancer, reproductive toxicity and developmental toxicity; Lead.

State Right-to-Know Lists : Lead, Tin, Hydrochloric acid, 2-aminoethanol and Ammonium chloride can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

Canada

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

**WHMIS Classification:
(for workplace exposures)**

D2A – Material causing other toxic effects - Carcinogenicity and other chronic health effects.

**New Substance Notification
Regulations:**

All ingredients in the product are listed, as required, on Canada's Domestic Substances List (DSL).

NPRI Substances:

Lead, Part 1 Group 4 substance (2008).

EC Classification for the Substance/Preparation

Symbol:



Toxic



Dangerous for the environment

R Phrases:

R20/22: Harmful by inhalation and if swallowed.

R33: Danger of cumulative effects.

Repr. Cat. 1; R61: May cause harm to the unborn child.

Repr. Cat. 3; R62: Possible risk of impaired fertility.

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

S Phrases:

S2: Keep out of reach of children.

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).

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.

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Section 16: Other Information

Full Text of R-phrases appearing in Section 2:

R61: May cause harm to the unborn child.
R20/22: Harmful by inhalation and if swallowed.
R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
R22: Harmful if swallowed.
R33: Danger of cumulative effects.
R34: Causes burns.
R36: Irritating to eyes
R37: Irritating to respiratory system
R62: Possible risk of impaired fertility.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Preparation Information:

Prepared by:

LEHDER Environmental Services Limited
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Preparation date:

September 12, 2008

Revision Date:

Not applicable

Revision Summary:

Not applicable

Disclaimer:

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