

Aluminum Flux Paste

LA-CO Industries, Inc.

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)
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Version: 3.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Trade name : Aluminum Flux Paste

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Soldering flux

1.3. Details of the supplier of the safety data sheet

LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL. 60007-5746
Phone: (847) 956-7600
Fax: (847) 956-9885
E-mail: customer_service@laco.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard

Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Corr. 1B	H314
Skin Sens. 1	H317
Muta. 2	H341
Repr. 2	H361
STOT SE 3	H335
STOT RE 2	H373
Aquatic Chronic 2	H411

Full text of hazard classes and H-statements : see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS05



GHS07



GHS08



GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H302+H332 - Harmful if swallowed or if inhaled
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H335 - May cause respiratory irritation
H341 - Suspected of causing genetic defects
H361 - Suspected of damaging fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe fume, spray
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing must not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear eye protection, face shield, protective clothing, protective gloves

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

P301+P312 - If swallowed: Call a POISON CENTER, a doctor if you feel unwell
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P302+P352 - If on skin: Wash with plenty of water
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - If exposed or concerned: Get medical advice/attention
P310 - Immediately call a doctor, a POISON CENTER
P314 - Get medical advice/attention if you feel unwell
P321 - Specific treatment (see First aid measures on this label)
P330 - Rinse mouth
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to an approved waste disposal plant

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	% (w/w)	GHS-US classification
2-aminoethanol	(CAS No) 141-43-5	56.6	Flam. Liq. 4, H227 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1B, H314 STOT SE 3, H335
ammonium hydrogendifluoride	(CAS No) 1341-49-7	17.92 - 18.87	Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314
tin chloride	(CAS No) 7772-99-8	13.16 - 14.62	Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1C, H314 Skin Sens. 1, H317 Muta. 2, H341 Repr. 2, H361 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
zinc chloride	(CAS No) 7646-85-7	8.51 - 8.96	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
ammonium fluoride	(CAS No) 12125-01-8	0.19 - 0.94	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:dust,mist), H331

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Immediately call a POISON CENTER or doctor/physician.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician. Wash with plenty of soap and water. If skin irritation or rash occurs: Get immediate medical advice/attention. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
First-aid measures after ingestion	: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries	: Suspected of causing genetic defects. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.
Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. May cause respiratory irritation.
Symptoms/injuries after skin contact	: Causes severe skin burns and eye damage. May cause an allergic skin reaction.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard. Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Carbon dioxide. Dry powder. Foam.
Unsuitable extinguishing media	: Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: No particular fire or explosion hazard.
Reactivity	: Thermal decomposition generates : Corrosive vapours.

5.3. Advice for firefighters

Firefighting instructions	: Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses. Cool adjacent structures and containers with water spray to protect and prevent ignition.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Avoid all eye and skin contact and do not breathe vapour and mist.
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6.1.1. For non-emergency personnel

Protective equipment	: Chemical goggles or safety glasses. Wear suitable gloves. Face shield.
Emergency procedures	: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	: Wear suitable gloves. Chemical goggles or safety glasses. Face shield.
Emergency procedures	: Ventilate area.

6.2. Environmental precautions

Avoid release to the environment. Do not discharge into drains or the environment. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment	: Stop the flow of material, if this is without risk.
Methods for cleaning up	: Take up in non-combustible absorbent material and shove into container for disposal.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Use only outdoors or in a well-ventilated area. Do not breathe fume, spray. Obtain special instructions before use. Use personal protective equipment as required. Do not handle until all safety precautions have been read and understood.
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace.

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Comply with applicable regulations.
Storage conditions	: Keep only in original container. Keep container tightly closed.
Incompatible products	: Strong oxidizers.
Incompatible materials	: Sodium nitrite. Hydrogen fluoride.
Prohibitions on mixed storage	: Incompatible materials.
Storage area	: Store in dry, cool, well-ventilated area.

7.3. Specific end use(s)

Flux.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Aluminum Flux Paste		
ACGIH	Not applicable	
OSHA	Not applicable	
2-aminoethanol (141-43-5)		
ACGIH	ACGIH TWA (mg/m³)	7.5 mg/m³
ACGIH	ACGIH TWA (ppm)	3 ppm
ACGIH	ACGIH STEL (mg/m³)	15 mg/m³
ACGIH	ACGIH STEL (ppm)	6 ppm
ACGIH	Remark (ACGIH)	Eye & skin irr
OSHA	OSHA PEL (TWA) (mg/m³)	6 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	3 ppm
Canada (Quebec)	VECD (mg/m³)	15 mg/m³
Canada (Quebec)	VECD (ppm)	6 ppm
Canada (Quebec)	VEMP (mg/m³)	7.5 mg/m³
Canada (Quebec)	VEMP (ppm)	3 ppm
tin chloride (7772-99-8)		
ACGIH	Not applicable	
OSHA	Not applicable	
zinc chloride (7646-85-7)		
ACGIH	ACGIH TWA (mg/m³)	1 mg/m³
ACGIH	ACGIH STEL (mg/m³)	2 mg/m³
ACGIH	Remark (ACGIH)	LRT & URT irr
OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
Canada (Quebec)	VEMP (mg/m³)	1 mg/m³
ammonium fluoride (12125-01-8)		
ACGIH	Not applicable	
OSHA	Not applicable	
ammonium hydrogendifluoride (1341-49-7)		
ACGIH	Not applicable	
OSHA	OSHA PEL (TWA) (mg/m³)	2.5 mg/m³

8.2. Exposure controls

Appropriate engineering controls	: Avoid creating mist or spray. Emergency safety showers should be available in the immediate vicinity of any potential exposure. Eyewash stations. Either local exhaust or general room ventilation is usually required.
Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear suitable gloves resistant to chemical penetration. Use rubber gloves.
Eye protection	: Face shield. Chemical goggles or safety glasses.
Skin and body protection	: Wear suitable protective clothing. Impervious clothing.
Respiratory protection	: Wear appropriate mask. Use air-purifying respirator equipped with particulate filtering cartridges.

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

Other information : Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Colour : light amber.
Odour : Ammonia-like.
Odour threshold : No data available
pH : 6 - 8
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : > 93.3 °C
Flash point : > 93 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : 1.33
Solubility : Soluble in water.
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information

VOC content : 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Heat.

10.5. Incompatible materials

Strong oxidizers. Sodium nitrite.

10.6. Hazardous decomposition products

Thermal decomposition generates : Corrosive vapours. Hydrogen fluoride. ammonia. Carbon monoxide. Burning produces irritating, toxic and noxious fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Inhalation:dust,mist: Harmful if inhaled.

Aluminum Flux Paste	
LD50 oral rat	671 mg/kg
ATE CLP (oral)	671.000 mg/kg bodyweight
ATE CLP (dust,mist)	2.174 mg/l/4h
2-aminoethanol (141-43-5)	
LD50 oral rat	1515 mg/kg

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

2-aminoethanol (141-43-5)	
LD50 dermal rabbit	1822 (1822 - 3451) mg/kg
LC50 inhalation rat (mg/l)	> 1.3 mg/l
ATE CLP (oral)	1515.000 mg/kg bodyweight
ATE CLP (dermal)	1822.000 mg/kg bodyweight
ATE CLP (dust,mist)	1.500 mg/l/4h
tin chloride (7772-99-8)	
LD50 oral rat	2274.6 mg/kg bodyweight
LC50 inhalation rat (mg/l)	2 mg/l/4h
ATE CLP (oral)	2274.600 mg/kg bodyweight
ATE CLP (vapours)	2.000 mg/l/4h
ATE CLP (dust,mist)	2.000 mg/l/4h
zinc chloride (7646-85-7)	
LD50 oral rat	1100 mg/kg
LD50 dermal rabbit	> 2000 mg/kg no effects were seen
LC50 inhalation rat (mg/l)	2000 mg/m ³ calculated
ATE CLP (oral)	1100.000 mg/kg bodyweight
ammonium fluoride (12125-01-8)	
LD50 oral rat	200 (200 - 2000) mg/kg
LC50 inhalation rat (mg/l)	1 mg/l/4h read-across NaF
ATE CLP (oral)	200.000 mg/kg bodyweight
ATE CLP (dermal)	300.000 mg/kg bodyweight
ATE CLP (vapours)	1.000 mg/l/4h
ATE CLP (dust,mist)	1.000 mg/l/4h
ammonium hydrogendifluoride (1341-49-7)	
LD50 oral rat	130 mg/kg
ATE CLP (oral)	130.000 mg/kg bodyweight

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Suspected of causing genetic defects.
Carcinogenicity	: Not classified
Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity (single exposure)	: May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)	: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	
Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. May cause respiratory irritation.
Symptoms/injuries after skin contact	: Causes severe skin burns and eye damage. May cause an allergic skin reaction.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard. Harmful if swallowed.
Likely routes of exposure	: Skin and eye contact;Inhalation

SECTION 12: Ecological information

12.1 Toxicity

Ecology - water : Toxic to aquatic life with long lasting effects.

2-aminoethanol (141-43-5)	
LC50 fish 1	165 mg/l 48 h
EC50 Daphnia 1	65 mg/l 48 h
tin chloride (7772-99-8)	
NOEC chronic crustacea	0.18 mg/l
zinc chloride (7646-85-7)	
LC50 fish 1	0.727 (0.727 - 1.65) mg/l Oncorhynchus kisutch

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

zinc chloride (7646-85-7)	
EC50 Daphnia 1	0.33 (0.33 - 0.66) mg/l
ammonium fluoride (12125-01-8)	
LC50 fish 1	209 mg/l 96 h
EC50 other aquatic organisms 1	26 - 48 mg/l 96 h, trichoptera aquatic larvae
NOEC (acute)	11.8 mg/l test mat. estimated from NH3-N content according to EPA-600/3-79-091
ammonium hydrogendifluoride (1341-49-7)	
LC50 fish 1	421.4 nM
EC50 Daphnia 1	109 - 340 mg/l

12.2. Persistence and degradability

Aluminum Flux Paste	
Persistence and degradability	May cause long-term adverse effects in the environment.
2-aminoethanol (141-43-5)	
Persistence and degradability	Readily biodegradable.
tin chloride (7772-99-8)	
Persistence and degradability	Readily biodegradable.

12.3. Bioaccumulative potential

2-aminoethanol (141-43-5)	
Log Pow	-1.31
tin chloride (7772-99-8)	
Log Pow	-2.1506
zinc chloride (7646-85-7)	
Bioaccumulative potential	Not expected to bioaccumulate.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT and TDG	
Transport document description	: UN1759 Corrosive solids, n.o.s. (2-aminoethanol, ammonium dihydrogenfluoride), 8, II
UN-No.(DOT)	: UN1759
Proper Shipping Name (DOT)	: Corrosive solids, n.o.s. (2-aminoethanol, ammonium dihydrogenfluoride)
Transport hazard class(es) (DOT)	: 8 - Corrosive
Packing group (DOT)	: II - Medium Danger
Dangerous for the environment	: Yes
Marine pollutant	: Yes



ADR

Transport document description	: UN 1759 CORROSIVE SOLID, N.O.S. (2-aminoethanol, ammonium dihydrogenfluoride), 8, II, (E)
Proper Shipping Name (ADR)	: CORROSIVE SOLID, N.O.S. (2-aminoethanol, ammonium dihydrogenfluoride)
Packing group (ADR)	: II
Transport hazard class(es) (ADR)	: 8
Dangerous for the environment	: Yes

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

Marine pollutant : Yes



Transport by sea

UN-No. (IMDG) : UN 1759
Proper Shipping Name (IMDG) : CORROSIVE SOLID, N.O.S. (2-aminoethanol, ammonium dihydrogenfluoride)
Transport hazard class(es) (IMDG) : 8
Packing group (IMDG) : II
Dangerous for the environment : Yes
Marine pollutant : Yes



Air transport

UN-No. (IATA) : UN 1759
Proper Shipping Name (IATA) : Corrosive solid, n.o.s. (2-aminoethanol, ammonium dihydrogenfluoride)
Transport hazard class(es) (IATA) : 8
Packing group (IATA) : II
Dangerous for the environment : Yes
Marine pollutant : Yes



SECTION 15: Regulatory information

15.1. US Federal regulations

2-aminoethanol (141-43-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

tin chloride (7772-99-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

zinc chloride (7646-85-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313

ammonium fluoride (12125-01-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists)

100 lb

ammonium hydrogendifluoride (1341-49-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists)

100 lb

15.2. International regulations

CANADA

2-aminoethanol (141-43-5)

Listed on the Canadian DSL (Domestic Substances List) inventory.

tin chloride (7772-99-8)

Listed on the Canadian DSL (Domestic Substances List) inventory.

zinc chloride (7646-85-7)

Listed on the Canadian DSL (Domestic Substances List) inventory.

Aluminum Flux Paste

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

ammonium fluoride (12125-01-8)

Listed on the Canadian DSL (Domestic Substances List) inventory.

ammonium hydrogendifluoride (1341-49-7)

Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations

2-aminoethanol (141-43-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

tin chloride (7772-99-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

zinc chloride (7646-85-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

ammonium fluoride (12125-01-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

ammonium hydrogendifluoride (1341-49-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Aluminum Flux Paste

All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).

All ingredients are listed in the Toxic Substances Control Act (TSCA).

All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).

15.3. US State regulations

2-aminoethanol (141-43-5)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Minnesota - Hazardous Substance List

tin chloride (7772-99-8)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - New York - Right to Know List of Hazardous Chemicals

ammonium fluoride (12125-01-8)

U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

ammonium hydrogendifluoride (1341-49-7)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes

: Transport information.

Data sources

: Canadian Centre for Occupational Health and Safety. Accessed at:
http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html.

ESIS (European chemical Substances Information System; accessed at:
<http://esis.jrc.ec.europa.eu/index.php?PGM=cla>.

European Chemicals Agency (ECHA) Registered Substances list. Accessed at
<http://echa.europa.eu/>. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to
Chemical Protective Clothing", Fifth Edition.

National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th
edition.

OSHA 29CFR 1910.1200 Hazard Communication Standard.

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE
COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and
mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending
Regulation (EC) No 1907/2006.

TSCA Chemical Substance Inventory. Accessed at
<http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>.

Aluminum Flux Paste

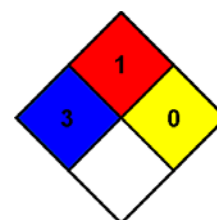
Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

Abbreviations and acronyms	: ACGIH (American Conference of Government Industrial Hygienists). ATE: Acute Toxicity Estimate. CAS (Chemical Abstracts Service) number. CLP: Classification, Labelling, Packaging. EC50: Environmental Concentration associated with a response by 50% of the test population. GHS: Globally Harmonized System (of Classification and Labeling of Chemicals). LD50: Lethal Dose for 50% of the test population. OSHA: Occupational Safety & Health Administration. PBT: Persistent, Bioaccumulative, Toxic. STEL: Short Term Exposure Limits. TSCA: Toxic Substances Control Act. TWA: Time Weight Average.
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Other information : None.

NFPA health hazard	: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.
NFPA fire hazard	: 1 - Must be preheated before ignition can occur.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



Full text of H-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Flam. Liq. 4	Flammable liquids, Category 4
Muta. 2	Germ cell mutagenicity, Category 2
Repr. 2	Reproductive toxicity, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Corr. 1C	Skin corrosion/irritation, Category 1C
Skin Sens. 1	Sensitisation — Skin, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H227	Combustible liquid
H301	Toxic if swallowed
H302	Harmful if swallowed
H311	Toxic in contact with skin
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H331	Toxic if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H341	Suspected of causing genetic defects
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

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LACO NA GHS SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Name: #60 Solder

Product Use: Solder Wire 90/10 mixture of Tin and Zinc

Manufacturer: LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL.
60007-5746

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)	EU Classification	WHMIS (Canada)	Transportation
		Not classified as dangerous	 Not controlled	Not Regulated

Emergency Overview:

Zinc oxide fumes generated during soldering operations may cause eye, nose, throat and lung irritation. Inhalation of zinc oxide fumes may cause metal fume fever.

Appearance, Color and Odor: ½ oz. coil of silver colored wire.

USA: This material is not considered hazardous by the OSHA hazard Communication Standard (29 CFR 1910.1200).

Canada: This is not a controlled product under WHMIS.

European Communities (EC): This product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Potential Health Effects

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

Relevant Route(s) of Exposure:

Inhalation, Eye contact, Skin contact. Potential health effects statements may not be applicable as the hazardous ingredients listed are in the solid form. If zinc oxide fumes are generated during use by heating, then these statements will be applicable.

Inhalation: Inhalation of fume particulates from soldering operations may cause metal fume fever and nose, throat and lung irritation. The symptoms of metal fume fever typically appear 4-8 hours after exposure and are associated with any combination of the following symptoms; thirst, metallic taste, cough, chills, fever, headache, chest tightening, shortness of breath, abdominal pain, vomiting and fatigue.

Ingestion: Not an applicable route of occupational exposure.

Skin: Overexposure to zinc oxide fumes generated during soldering operations may cause skin irritation. Contact with molten metal can cause skin burns.

Eye: Overexposure to zinc oxide fumes generated during soldering operations may cause eye irritation with symptoms of pain, redness, and tearing. Contact with molten metal can cause eye burns.

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

Prolonged or repeated over-exposure to zinc oxide fumes by skin contact may cause dermatitis.

Prolonged or repeated exposure to tin oxide fumes by inhalation may cause stannosis, a benign pneumoconiosis.

SAFETY DATA SHEET

Section 2: Hazards Identification, continued

Medical Conditions Aggravated by Exposure: Inhalation of airborne fumes may aggravate pre-existing respiratory conditions. Skin contact may aggravate an existing dermatitis.

Interactions With Other Chemicals: Not available

Potential Environmental Effects: Not available

Section 3: Composition / Information on Ingredients

Hazardous Ingredients:

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt. %</u>	<u>EINECS / ELINCS</u>	<u>Symbol</u>	<u>Risk Phrases</u>
Tin	7440-31-5	90 - 95	233-141-8	None*	None
Zinc	7440-66-6	5 - 10	231-175-3	N	R50/53

Note: * This chemical substance is not classified in the Annex I of Directive 67/548/EEC.
See Section 16 for the full text of the R-phrases above.

Section 4: First Aid Measures

Inhalation: Remove source of contamination or move victim to fresh air. Obtain medical advice. Note: Metal fume fever may develop 4-8 hours after exposure. If flu-like symptoms develop, obtain medical attention.

Eye Contact: Molten Metal: Immediately flush the contaminated eye(s) with gently flowing water for at least 15 minutes. Immediately obtain medical attention.
Solid Product: If fumes or dust enters the eyes, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 15 minutes. If irritation develops, obtain medical advice.

Skin Contact: Molten Metal: Immediately cool skin burns with cold packs or cool gently flowing water for at least 15 minutes. Do not put ice directly on the skin. Do not attempt to remove solidified product from the skin, as damage may result. Immediately obtain medical attention.
Solid Product: No health effects expected. If irritation occurs, quickly and gently, blot or brush away excess particulate. Wash gently and thoroughly with lukewarm, gently flowing water and non-abrasive soap for 5 minutes. If irritation persists, obtain medical advice.

Ingestion: If swallowed in large amounts or if irritation or discomfort occurs, obtain medical advice immediately.

Section 5: Fire Fighting Measures

Flammable Properties: Not flammable and does not support combustion.

Suitable extinguishing Media: Use extinguishing media appropriate for the surrounding fire.

Unsuitable extinguishing Media: Not applicable

Explosion Data:

Sensitivity to Mechanical Impact: Not applicable

Sensitivity to Static Discharge: Not applicable

Specific Hazards arising from the Chemical: During a fire, molten metal may generate tin and zinc oxide fumes.

Protective Equipment and precautions for firefighters: Self-contained breathing apparatus and protective clothing should be worn. Remove all unprotected personnel.

NFPA

Health:	1
Flammability:	0
Instability:	0

SAFETY DATA SHEET

Section 6: Accidental Release Measures

- Personal Precautions:** Wear adequate personal protective equipment as indicated in Section 8. Ventilate the area if airborne dust or fume is present.
- Environmental Precautions:** Prevent the product from entering sewers or waterways.
- Methods for Containment:** Stop the spill if it is safe to do so.
- Methods for Clean-up:** Scrape or scoop up the spilled product and collect for re-use or proper disposal. Dispose of any contaminated, unusable product as described in Section 13 of this SDS.

Section 7: Handling and Storage

- Handling:** Avoid contact with eyes and skin; do not breathe fumes. Do not ingest. Keep out of reach of children. Use this material with adequate ventilation. Wash thoroughly with detergent and water after handling, before eating, drinking, smoking or using the toilet.
- Storage:** Store in a dry area, away from incompatible materials (see Section 10).

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines

<u>Ingredient</u>	<u>ACGIH TLV</u> <u>(8-hr. TWA)</u> <u>(mg/m³)</u>	<u>U.S. OSHA PEL</u> <u>(8-hr. TWA)</u> <u>(mg/m³)</u>	<u>Ontario (Canada)</u> <u>TWAEV</u> <u>(mg/m³)</u>	<u>UK OEL</u> <u>(8-hr. TWA)</u> <u>(mg/m³)</u>
Tin, as Sn	2 (metal)	2 (inorganic compounds, except oxides)	2 (metal, oxide and inorganic compounds)	2 (inorganic) STEL: 4 (inorganic)
Zinc oxide	2 (respirable) STEL: 10 (respirable)	5 (fume)	2 (respirable) STEV: 10 (respirable)	Not established

Exposure Controls

- Engineering Controls:** Provide adequate ventilation/local exhaust to keep vapor concentrations below the exposure limits listed above.
- Personal Protection:** Workers must comply with the Personal Protective Equipment requirements of the workplace in which this product is handled.
For operations requiring specific protection for mechanical hazards and heat protection refer to the appropriate occupational safety standard.
- Eye/Face Protection:** Wear eye/face protection (e.g. goggles/face shield) appropriate for the workplace where this material is handled and the conditions of use.
- Skin Protection:** Wear appropriate protective suitable for high temperature soldering operations.
Wear clean, body-covering clothing, when workplace conditions warrant their use.
- Respiratory Protection:** Not required for normal use.
If ventilation and other engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protective equipment (RPE). Where occupational exposure limits are exceeded, workers must wear an approved respirator. In workplaces where respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. Consult with respirator manufacturer to determine respirator selection, use and limitations.
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements, European Standard EN529 or Canadian Standards Association (CSA) Standard Z94.4-2002 must be followed whenever workplace conditions warrant a respirator's use.
- General Hygiene Measures:** Avoid breathing fumes. Avoid contact with skin and eyes. Keep out of reach of children. Wash hands after handling. Do not eat, drink or smoke in work areas.

SAFETY DATA SHEET

Section 9: Physical and Chemical Properties

Physical State:	Solid	Vapor Pressure (mm Hg @ 25°C):	Not applicable
Appearance:	½ oz. coil of silver colored wire	Vapor Density (Air = 1):	Not available
pH:	Not applicable	Solubility in Water:	Insoluble in water.
Relative Density (water = 1):	7.26	Water / Oil distribution coefficient:	Not applicable
Boiling Point:	Not available	Odor Type:	Odorless
Melting Point:	199°C (390°F)	Odor Threshold:	Not applicable
Viscosity:	Not applicable	Evaporation Rate (n-Butyl Acetate = 1):	Not applicable
Oxidizing Properties:	Not applicable	Auto Ignition Temperature (°C):	Not applicable
Flash Point and Method:	Not applicable	Flammability Limits (%):	Not applicable

Section 10: Stability and Reactivity

Chemical Stability:	Stable
Conditions to Avoid:	Avoid extreme heat which may melt the product.
Incompatible Materials:	Incompatible with strong acids.
Hazardous Decomposition Products:	Thermal decomposition may release harmful or irritating zinc oxide fumes.
Possibility of Hazardous Reactions:	Hazardous polymerization will not occur.

Section 11: Toxicological Information

Acute Toxicity Data for the mixture: Acute toxicity data is not available for this solid article.

Chronic Toxicity Data

Carcinogenicity:	Normal use of this product will not result in exposure to any component that is considered a human carcinogen by IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists, OSHA or NTP (National Toxicology Program).
Irritation:	Zinc oxide fumes generated during soldering operations may cause eye, nose, throat and respiratory tract irritation.
Corrosivity:	Not applicable
Sensitization:	Not available
Neurological Effects:	Not available
Genetic Effects:	Not available
Reproductive Effects:	Not available
Developmental Effects:	Not available
Target Organ Effects:	Not available

SAFETY DATA SHEET

Section 12: Ecological Information

Ecotoxicity:	Zinc compounds released into the aquatic environment have long-term effects on the aquatic environment. This product is insoluble in water and is not expected to release dangerous compounds into the aquatic environment.
Persistence/Degradability:	Not available
Bioaccumulation/Accumulation:	Product is not readily biodegradeable.
Mobility:	Not available

Section 13: Disposal Considerations

Waste Disposal Method:	Do NOT discard into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage. 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, the supplier 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.
EU:	Waste must be disposed of in accordance with relevant EU Directives and national, regional and local environmental control regulations.

Section 14: Transport Information:

U.S. Hazardous Materials Regulation (DOT 49CFR):	Not regulated
Canadian Transportation of Dangerous Goods (TDG):	Not regulated
ADR/RID:	Not regulated
IMDG:	Not regulated
Marine Pollutants:	Not applicable
ICAO/IATA:	Not regulated

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: Not applicable Sec. 313: Zinc CERCLA RQ: Zinc California Prop 65: This product is not known to contain chemicals known to the State of California to cause cancer or reproductive harm.
Canada	This product has been classified in accordance with the hazard criteria of the <i>Controlled Products Regulations</i> and the MSDS contains all the information required by the <i>Controlled Products Regulations</i>. WHMIS Classification: Not controlled DSL: All component substances are listed on Canada's Domestic Substances List (DSL). NPRI Substances (National Pollutant Release Inventory): Zinc compounds are NPRI Reportable substances.

SAFETY DATA SHEET

**EU Classification for the
Substance/Preparation**

Symbol: This article is not classified as dangerous according to Directive 1999/45/EC and its amendments.
Safety Phrases: S1/2: Keep locked up and out of the reach of children.

Section 16: Other Information

**Full Text of R-phrases
appearing in Section 3:**

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

Preparation Information:

Revision Date:

July 4, 2011

Revision Summary:

July 4, 2011: Revised SDS format.
April 24, 2008: Original MSDS

Manufacturer Disclaimer:

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