



Electroloy Metal Pte Ltd^{197700989H}

• 67, Tuas Ave 1, Singapore 639509 • Tel +65 6491 2663 • Fax +65 6399 2168 • Email: enquiry_sg@electroloy.com • www.electroloy.com

MATERIAL SAFETY DATA SHEET

SECTION 1 : CHEMICAL PRODUCT & COMPANY IDENTIFICATION

1.1 Product Details:

Product Name : **EM2021AHF-L WATER SOLUBLE FLUX**
Product Code : EM2021AHF-L
Product Use : Soldering flux for electronic assemblies
Chemical Family : Organic Mixture
D.O.T.Hazard Class : Flammable Mixture

1.2 Company's Identification:

Supplier's Name : **Electroloy Metal Pte Ltd.**
Address : 67, Tuas Ave 1,
Singapore 639509

Telephone : +65 64912663
Facsimile : +65 63992168

SECTION 2 : HAZARD IDENTIFICATION

HMIS Rating : Health :1 Flammability :3 Reactivity :C
NFPA Rating : Health :1 Flammability :3 Reactivity :C
Safety hazards : Highly flammable. In use, may form flammable/explosive vapor-air mixture.
Emergency Overview : Fumes during soldering are irritating to eyes and may cause headache and respiratory system irritation or damage. Harmful if swallowed. May cause allergic skin reaction.
Primary Exposure : Fumes during soldering will contain evaporated solvent and droplets of organic decomposition products.
Primary Routes of Entry : Eyes, Inhalation, Ingestion
Target organs : Eyes, mucous membranes and respiratory system.

SECTION 2 : HAZARD IDENTIFICATION (CONT.)

Potential Health Effects of Acute (severe short-term) Exposure:

Eye Contact : Irritation from contact with liquid and smoke from soldering.

Skin contact : May cause irritation of the skin.

Inhalation : Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system. High concentration can cause headache, dizziness, narcosis and nausea.

Ingestion : May exhibit burning sensation in the digestive tract.

Potential Health Effects of Chronic (prolonged) Exposure :

Prolonged or repeated contact with skin can cause a rash. Smoke during soldering can cause eye irritation and respiratory system irritation and damage. Vapours can cause headache, dizziness, narcosis and irritation of mucous membranes.

Medical Conditions Generally Aggravated by Exposure:

Chemical hypersensitivity, asthma and other respiratory conditions, existing eye and skin disorders. Continued breathing of high concentrations of solvent vapours can affect the liver and central nervous system.

Carcinogenicity : Not listed.

SECTION 3 : COMPOSITION / INFORMATION ON MATERIAL

Chemical Name	C.A.S Number	% by weight	OSHA PEL	ACGIH TLV
Isopropyl Alcohol	67-63-0	<80	400ppm	400ppm
Carboxylic Acid	68603-84-9	<10	NE	NE
Proprietary Ingredients	-	<5	NE	NE
Surfactants	9014-93-1	<5	-	-
Deionised Water	-	<5	-	-

NOTES :-

C.A.S : Chemical Abstract Service

OSHA : Occupational Safety and Health Administration

PEL : Permissible Exposure Limit

ACGIH : American Conference of Governmental Industrial Hygienists

TLV : Threshold Limit Value

NE : Non Established

SECTION 4 : FIRST AID MEASURES

Eye Contact : Immediately rinse with clean water for 15-20 minutes, obtain emergency medical attention.

Skin contact : Remove contaminated clothing and wash skin thoroughly with mild soapy water.

Inhalation : Remove victim to fresh air immediately. If breathing is difficult, administer oxygen. Obtain emergency medical attention.

Ingestion : DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious person. Obtain emergency medical attention.

SECTION 5 : FIRE-FIGHTING MEASURES

Flammability	: Highly flammable.
Conditions to avoid	: Sparks, open flames.
Flash point (T.O.C.)	: 18°C
Auto Ignition Temperature	: 399°C
Flammability Limits in air(%)	: Lower : 2% Upper : 12%
Specific Hazards	: Hazardous combustion products may include carbon monoxide. The vapor is heavier than air, spreads along the ground and distant ignition is possible.
Extinguishing Media	: Alcohol resistant foam. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	: Water in a jet
Protective equipment	: Full protective clothing and self-contained breathing apparatus.
Other information	: Keep adjacent containers cool by spraying with water.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Personals precautions	: Avoid contact with skin, eyes. Ventilate contaminated area thoroughly. Do not breathe vapor. Extinguish naked flames. Remove ignition sources. No smoking. Avoid sparks. Evacuate the area of all non-essential personnels. Shut off leaks, if possible without personal risk.
Personal protection	: Wear chemically impervious gloves, chemically impervious one-piece suit with integral hood, safety boots-chemical resistant, knee length. Wear full face-piece respirator with organic vapor canister NPF 400. In a confined space, wear self-contained breathing apparatus open circuits type NPF 2000.
Enviromental precautions	: Prevent contamination of soil and water. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean-up methods - small Spillage	: Absorb or contain liquid with sand, earth or spill control material. Shovel up and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum. Flush contaminated area with plenty of water. Retain washings as contaminated waste.
Clean up methods - large Spillage	: Transfer to a labelled, sealable container for product recovery or safe disposal. Treat residues as for small spillage.
Other information	: Risk of explosion. Inform the emergency services if liquid enters surface water drains. Vapor may form an explosive mixture with air. See section 13 for information on disposal.

SECTION 7 : HANDLING AND STORAGE

Precautions	: Store in properly vented containers, use non-spark equipment while working with or around this product. The container must be grounded before transfer since residual vapors may ignite. Do not cut, drill, grind or weld on or near this container. Empty containers contain residue of product therefore replace bungs and dispose of container in accordance with the Federal, State or local Regulations
Handling	: Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Extinguish any naked flames. Remove ignition sources. Avoid sparks. Do not smoke. Do not empty into drains.
Storage	: Keep away from direct sunlight and other sources of heat or ignition. Do not smoke in storage areas. Keep container tightly closed and in a well-ventilated place.
Special Sensitivity	: High temperature and oxidizers.
Storage temperature	: Ambient temperature.
Average Shelf Life	: 12 months.

SECTION 8 : EXPOSURE CONTROL AND PERSONAL PROTECTION

Eye Protection	: Chemical splash goggles and face shield. Contact lenses must not be worn.
Hand/Body Protection	: Chemically impervious gloves. Standard issue work clothes. Safety shoes or boots -chemical resistant. If splashes are likely to occur wear chemically impervious apron.
Respiratory Protection	: If exposure exceeds the PEL/TLV, use NIOSH approved respirator for organic vapors.
Ventilation	: Maintain adequate ventilation at all times and exhaust in work areas.
Other	: Safety showers and eyewash stations should be available. Employees must be trained in the safe use and handling of hazardous chemicals. Use good personal hygiene practices. Wash hands before eating, drinking or using toilet facilities.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid
Appearance	: Light yellowish liquid
odor	: Alcohol
Boiling Point	: 82°C
Vapor Pressure	: 33 mmHg at 20°C
Vapor Density (air=1)	: 2.1

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

Flash point (T.O.C.)	: 18°C
Autoignition Temperature	: 399°C
Flammability Limit in air(%)	: Lower : 2% Upper : 12%
Specific Gravity (water=1)	: ~0.875
Solubility in water	: 100%
pH	: 4.0
Solid content(% by wt)	: ~21%
Evaporation Rate (butyl acetate=1)	: 1.7
Percent Volatile (by weight)	: ~78%

SECTION 10 : PHYSICAL HAZARDS (STABILITY AND REACTIVITY)

Stability	: Stable.
Hazardous Polymerization	: Will not occur.
Hazardous Decomposition Products	: Incomplete combustion may yield carbon monoxide and other toxic gases.
Incompatibility(Material to avoid)	: Strong oxidizers.
Condition to avoid	: Heat, flames and sparks.

SECTION 11 : TOXICOLOGICAL INFORMATION

Exposure Limits	: See Section 3 for ingredients
Isopropyl alcohol	: LD50 : 5045 mg/kg (acute oral, rat) LD50 : 3600 mg/kg (oral, mouse) LD50 : 12800 mg/kg (acute dermal, rabbit) LC50 : 16000 ppm (8 hours acute inhalation, rat)

SECTION 12 : ECOLOGICAL INFORMATION

Do not allow product to reach ground water, water course or sewage system.

SECTION 13 : DISPOSAL CONSIDERATIONS

Waste may be disposed of by a licensed waste disposal company or disposed of in accordance with the Federal, State or local Regulations.

CAUTION: Empty containers may contain product residue, all labelled hazard precautions must be observed.

SECTION 14 : TRANSPORT INFORMATION

Road transport ADR/RID

UN No : 1219
Class : 3
Item : 3b
Hazard symbol : Flammable liquid
Kemler number : 33

Maritime transport IMO

UN No : 1219
Class : 3.2
Packing group : II
Hazard symbol : Flammable liquid
Marine pollutant : No

Air transport ICAO/IATA

UN No : 1219
Class : 3
Packing group : II
Hazard symbol : Flammable liquid

SECTION 15 : REGULATORY INFORMATION

EC classification : Highly flammable irritant
EC symbols : (F) Highly flammable
(Xi) Irritant
EC Risk Phrases : (R36) Irritating to eyes
(R11) Highly flammable
EC Safety Phrases : (S7) Keep container tightly closed
(S16) Keep away from sources of ignition - no smoking
(S26) In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

TSCA (Toxic substances Control Act) : All ingredients are listed.

SECTION 16 : OTHER INFORMATION

Distribution : The information in this document should be made available to all who may handle the product.

The information contained herein is based on data considered accurate and is offered solely for information consideration and investigation.

Electroloy extends no warranties, makes no representation and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by or under the direction of technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained how to use a Material safety Data Sheet as a source of Hazard information.