SECTION I: PRODUCT AND COMPANY INFORMATION

Product Name: Kapp Lunar Flux™ for Soldering of Aluminum 550–800°F / 288-427°C
CAS Numbers:

COMPONENT	CAS NO.	ECHA Number	COMPONENT	CAS NO.	ECHA Number
Zinc Chloride	7646-85-7	231-592-0	Sodium Fluoride	7681-49-4	231-667-8
Ammonium Chloride	506-87-6	208-058-0	Methanol	67-56-1	200-659-6

Company Identification: Kapp Alloy and Wire, Inc., 1 Klein Street / PO Box 1188, Oil City, PA 16301 USA
Contact: Telephone: 814-676-0613 or 1-800-327-6533, Email: info@kappalloy.com

SECTION II: HAZARD INFORMATION

Classification of the mixture according to Regulation (EC) No. 1272/2008 and OSHA 29 CFR 1910

Flammable Liquids (Category 2) H225
Acute toxicity, Oral (Category 3) H301
Acute toxicity, Dermal (Category 3) H311
Skin corrosion (Category 1B) H314
Serious eye damage (Category 1) H318
Acute toxicity, Inhalation (Category 3) H331
Specific target organ toxicity – Single exposure (Category 1) H370
Acute aquatic toxicity (Category 1) H400
Chronic aquatic toxicity (Category 1) H410

Label Elements according to Regulation (EC) No. 1272/2008 and OSHA 29 CFR 1910
Hazard Pictograms:

GHS02 GHS05 GHS07 GHS08 GHS06 GHS09

Signal Word: **DANGER**
Hazard-determining components of labelling: Zinc Chloride, Ammonium Chloride, Sodium Fluoride, Methanol

Hazard Statements:
H225 Highly flammable liquid
H301 Toxic if swallowed
H311 Toxic if in contact with skin
H314 Causes severe skin burns and eye damage
**H318 Causes serious eye damage H331 Toxic if inhaled
H370 Causes damage to organs
**H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects
***May be omitted from label due to presence of stronger statement.*

Precautionary Statements:
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking
P233 Keep container tightly closed
P240 Ground/bond container and receiving equipment
P241 Use explosion-proof electrical/ventilating/lighting/equipment
P242 Use only non-sparking tools
P243 Take precautionary measures against static discharge
P260 Do not breathe mist, fumes, or vapors

P264 Wash skin thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P271 Use only outdoors or in a well-ventilated area
P273 Avoid release to the environment
P280 Wear protective gloves, protective clothing, and eye protection or face protection
P301+P312+P330+P331 IF SWALLOWED: Call a POISON CENTER if you feel unwell. Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340+P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.
P305+P351+P338+P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call POISON CENTER
P307+P311 IF exposed: Call a POISON CENTER or doctor/physician
P332+P313 If skin irritation occurs: get medical advice/attention
P337+P313 If eye irritation persists, get medical advice/attention
P362 Take off contaminated clothing and wash before reuse
P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P403+P235 Store in a well-ventilated place. Keep cool.
P391 Collect spillage
P405 Store locked up
P501 Dispose of contents and/or container to an approved waste disposal plantin accordance with local/regional/national/internationalregulations.

Other hazards:
PBT: Does not meet criteria for persistent – bio cumulative – toxic.
vPvB: Does not meet criteria for very persistent – very bio cumulative.

SECTION III: COMPOSITION / INGREDIENTS

*(Hazardous components 1% or greater; Carcinogens 0.1% or greater) None of the materials in this product are listed in NTP, IARC, or OSHA as carcinogens.

Component	CAS Number	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED
Zinc Chloride	7646-85-7	1 mg/m^3	1 mg/m^3	Hazard: Corrosive
Methanol	67-56-1	200 mg/m^3	----------	Hazard: Flammable
Sodium Fluoride	7681-49-4	2.5 mg/m^3	2.5 mg/m^3	Hazard: Acute & Chronic Effects (See Sec III)
Ammonium Chloride	506-87-6	10 mg/m^3	10 mg/m^3	Hazard: May be nuisance dust

NA = Not Applicable NE = Not Established NAIF = No Applicable Information found

SECTION IV: FIRST AID MEASURES

IF IN EYES: Flush with water for at least 15 minutes to remove irritant. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a physician immediately.
IF INHALED: Terminate exposure and remove to fresh air. Call physician; advise of chemical composition (section III). Over-inhalation may cause life-threatening lung injury.
IF ON SKIN: Wash thoroughly with soap and water to remove any residue. If a rash develops, call a physician.
IF SWALLOWED: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Call a physician or Poison Control Center IMMEDIATELY; Advise of chemical composition (Section III). Corrosive to mucous membranes. May containcorrosive hydrofluoric acid solution.

SECTION V: FIRE FIGHTING MEASURES

Flash point & Methods Used: 60°F / 15.6°C
Auto Ignition Temperature: None
Flammability Limits: (in air, % by volume) LEL: 5.5; UEL: 36.7

Extinguisher Media: All-purpose type foam for large fires. CO_2 or dry chemical extinguisher for small fires.

Special Fire Fighting Procedures: Full protective equipment required. May release zinc oxide and HCI fumes. Toxic metal halide fumes produced.
Unusual Fire/Explosion Hazards: Dense smoke may be generated

EMERGENCY PHONE NUMBER * CALL 1-800-327-6533 * AVAILABLE 24 HOURS

SECTION VI: ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is spilled or released:
Personal Precautions and Equipment and emergency procedures: Prevent direct contact to skin, eyes, and clothes. Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. *See section 8 for personal protection.*
Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
In Case Material is spilled: First neutralize with soda ash or sodium bicarbonate, dilute withwater and dispose of in accordance with EPA regulations.

SECTION VII: HANDLING AND STORAGE

Precautions to be taken in handling and storage:

- Store flux at ambient conditions 35-80 °F (2-27 °C). Keep under extremely dry and controlled conditions. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Wash thoroughly after handing and remove any residue. No eating or smoking in work area.
- Do not breathe fumes – may be fatal! Professionally wash contaminated clothing before re-use. Material will naturally absorb moisture and cake solid. Existing lung disorders will have increased toxic susceptibility.

SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA Permissible Exposure Limit (PEL): 5 mg/m³
ACGIH Threshold Limit Value (TLV): 5 mg/m³

Engineering Controls: Use local exhaust ventilation to maintain air concentrations of vapors and fumes below occupational exposure standards.
Special Engineering Control Needs: NA
Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate,use a full-face respirator with multi-purpose combination (USA) or ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested an approved under appropriate government standards such as NIOSH(USA) or CEN (EU).
Protective Gloves: Handle with gloves. (Nitrile Rubber recommended) Gloves must be inspected prior to use. Use proper glove removal techniques (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good lab practices. Wash and dry handsafter handling.
Eye Protection: Use tightly fitting safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (USA) or EN 166 (EU)
Body Protection: Complete suit protecting against chemical, flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

See also: 29 CFR 1910.132 - 29 CFR 1910.140. *Personal Protective Equipment*
29 CFR 1910.251 - 29 CFR 1910.257. *Welding, Cutting and Brazing*

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: White slurry with alcohol odor; corrosive
Specific Gravity: 1.51
Boiling Point (@ 760 mmHg): 148.3°F / 64.6°C
Solubility in Water (100 = complete): Moderate
Active Temperature Range: Active between 550 – 800°F / 288-427°C
pH: 10-11
General purpose high temperature aluminum soldering flux with corrosive residue.

SECTION X: STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.
Conditions to avoid: Excessive heat; decomposes forming corrosive, skin penetrating, toxic gases
Incompatibility (materials to avoid): Alkaline, strong oxidizers or reducers, cyanides or combustible materials
Hazardous Combustion / Decomposition: Toxic hydrofluoric acid, ammonium, zinc Chloride, and zinc oxide.

SECTION XI: TOXICOLOGY INFORMATION

Likely Route(s) of Exposure: Inhalation, ingestion, skin and eye contact
Symptoms (Immediate and Chronic) from
Acute Exposure No data available
Prolonged or Repeated Exposure No data available
Measure(s) of toxicity No data available
Is this chemical listed in the National Toxicology Program (NTP) Report on Carcinogens? No data available
Is this chemical found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs or by the Occupational Safety and HealthAdministration (OSHA) No data available

*0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

	Health	Flammability	Reactivity	Special
NFPA Rating	2	3	2	0
HMIS Rating	2	3	2	PE=C

SECTION XII: ECOLOGY INFORMATION

STATE RIGHT-TO-KNOW PROGRAMS:
Pennsylvania: All materials of Section III are listed in PA code Title 34.
California: As currently manufactured, this material contains no compounds subject to Proposition 65.

SECTION XIII: DISPOSAL CONSIDERATION

Waste Disposal Method

- Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Disposal of product and packaging must be made according to official regulations. Dispose of according to federal, state, local,international, and OSHA regulations.

SECTION XIV: TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION: **DOMESTIC GROUND**
Proper shipping name: Flammable Liquids, Corrosive, N.O.S. (Methanol Alcohol; Zinc chloride)
Hazard Class: 3, Subsidiary 8
ID & Packing Group Number: UN 2924, PG III
ERG Guide Number: 132

SECTION XV: REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT: All components of this compound are listed within the TSCA inventory.

RoHS, REACH, and REACH-SVHC Compliance:
This Product is RoHS and REACH Compliant. This product is free of REACH-SVHC substances.

SARA Title III Program

Section 313 Supplier Notification: This product contains the following toxic chemicals subject to the reporting requirements of EPCRA of 1986 and 40 CFR 372.

Component	CAS Number	SARA III
Methanol	67-56-1	< 30%

California Prop 65: As currently manufactured, this material contains no compounds subject to Proposition 65. More information at www.P65Warnings.ca.gov.

SECTION XVI: OTHER INFORMATION

This information must be included in all SDS that are copied and distributed for this material.

GOOD HOUSEKEEPING PROCEDURES SHOULD BE MAINTAINED. PERSONNEL SHOULD WASH THOROUGHLY BEFORE SMOKING OR EATING FOOD AND DRINK SHOULD NOT BE CONSUMED, TOBACCO PRODUCTS USED, OR COSMETICS APPLIED IN AREAS WHERE EXPOSURES EXIST.

Please retain this sheet for your files. Kapp Alloy maintains a file of Safety Data Sheets (SDS) for each alloy produced incompliance with Federal OSHA Hazard Communication Standard (29 CFR 1910.1200) & various right-to-know laws.

The information and recommendations contained within this publication have been compiled from sources believed to be reliable and to represent the best information available to Kapp Alloy and Wire, Inc. at the time of issue. It is our policy to include an SDS with initial orders for each product. This submission is to become a matter of record and need not accompanysubsequent shipments for the same product to the same customer. The information contained on this sheet is intended solelyfor employee health and safety education and not for contract specification purposes. No warranty, guarantee, or representation is made by Kapp Alloy and Wire, Inc., nor does Kapp Alloy and Wire, Inc. assume any responsibility in connection there within; nor can it be assumed that all acceptable safety measures or other safety measures may not be required under particular or exceptional conditions or circumstances. Should you need additional information, contact us.