1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT NAME: Alumalloy White Powdered Flux 83-1243

MANUFACTURED FOR: Kimball Midwest
4800 Roberts Road
Columbus, OH 43228
Phone: 800-233-1294

EMERGENCY TELEPHONE NUMBER: Chemtrec 800-424-9300

2. HAZARD IDENTIFICATION:

Emergency Overview: This product is normally not considered hazardous as shipped. Avoid eye contact or inhalation of dust from the product. When this product is used in a welding process, the most important hazards are welding fumes and heat.

Classification of the Substance/Mixture

CLP/GHS Classification (1272/2008):
Acute Toxicity – Oral, Category 4
Skin Corrosion, Category 1B
Specific Target Organ Toxicity (Single Exposure), Category 3
Hazardous to the Environment – Long-Term, Category 2

EU Classification (67/548/EEC):
Harmful (Xn), Irritant (Xi), Dangerous for the Environment (N), R22, R36/37/38, R51/53

Hazardous Classification per 29CFR 1910.1200 (Rev. July 1, 2012):
Acute Toxicity – Oral, Category 4
Skin Corrosion, Category 1B
Specific Target Organ Toxicity (Single Exposure), Category 3
Hazardous to the Environment – Long-Term, Category 2

Labelling:

Symbols:

Signal Word: Danger

Hazard-determining components of labelling:
Lithium Chloride
Zinc Chloride
Sodium Fluoride

Hazard Statements:
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H335 – May cause respiratory irritation.
H411 – Toxic to aquatic life with long lasting effects.

Precautionary Statements:
P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 – Wash skin and hair 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/eye protection/face protection.
P301+P330+P331 – IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P303+P361+P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P310 – Immediately call a POISON CENTER or doctor/physician.
P330 – Rinse mouth.
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 in accordance with local/regional/national/international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS:

Chemical Identity	CAS #	Range %	OSHA PEL (mg/m3)	Carcinogenicity	EU Classification (67/548/EEC)	CLP/GHS Classification (1272/2008)	Hazardous Classification per 29CFR 1910.1200 (Rev. July, 2012)
Lithium Chloride	7447-41-8	30-45	NA	No	(Xn) R22 (Xi) R36/37/38	(H302) Acute Tox. 4 (H315) Skin Irrit.. 2 (H319) Eye Irrit.. 2A (H335) STOT SE 3	(H302) Acute Tox. 4 (H315) Skin Irrit.. 2 (H319) Eye Irrit.. 2A (H335) STOT SE 3
Zinc Chloride	7646-85-7	6-10	1 PPM	No	(Xn) R22 (C) R34 (N),R50/53	(H302) Acute Tox. 4 (H314) Skin Corr. 1B (H410) Aquatic C. 1	(H302) Acute Tox. 4 (H314) Skin Corr. 1B (H410) Aquatic C. 1
Potassium Chloride	7447-40-7	30-45	10 PPM	No	Not Dangerous	Not Hazardous	Not Hazardous
Sodium Fluoride	7681-49-4	10-25	2.5 PPM	No	(T) R25 (Xi) R36/38	(H301) Acute Tox. 3 (H315) Skin Irrit.. 2 (H319) Eye Irrit.. 2A	(H301) Acute Tox. 3 (H315) Skin Irrit.. 2 (H319) Eye Irrit.. 2A
Sodium Chloride	7647-14-5	8-13	10 PPM	No	Not Dangerous	Not Hazardous	Not Hazardous

Important This section covers the materials of which the products manufactured. The fumes and gases produced during normal use of this product are covered in section 10. The term "Hazardous" in "Hazardous Material" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 29CFR 1910-1200 and it does not necessarily imply the existence of hazard. The chemicals or compounds reportable by Section 313 of SARA are marked by the symbol #.

4. FIRST AID MEASURES:

Inhalation: Remove to fresh air immediately or administer oxygen. Get medical attention immediately.
Skin: Flush skin with large amounts of water. If irritation develops and persists, get medical attention.
Eye: Flush eyes with water for at least 10 minutes. Get medical attention.
Ingestion: Obtain medical attention immediately if ingested. Rinse mouth.

5. FIRE-FIGHTING MEASURES:

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media: Not applicable

Specific Hazards Arising From Chemical: Chloride and fluoride fumes with high heat. Hydrogen Chloride Gas, Zinc/zinc oxides, Potassium Oxides, Sodium Oxides

Protective Equipment: Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES:

Personal Precautions: Refer to section 8.

Environment Precautions: Refer to section 13.

Cleaning Measures: First neutralize with soda ash or sodium bicarbonate, dilute with water and dispose of in accordance with EPA regulations.

7. HANDLING AND STORAGE:

Precautions for Safe Handling: Handle with care to avoid stings or cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Retain all warning and identity labels.

Conditions for Safe Storage: Store in plastic containers in cool area, away from heat. Use safe precautionary practices to avoid spills and exposure to skin and fumes.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION:

Engineering Controls: The usual precautionary measures for handling chemicals should be followed. Keep away from food, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before break and at the end of the work. Store all protective clothing separately. Maintain an ergonomically appropriate working environment. Wear protective equipment. Keep unprotected persons away. Avoid causing dust.

Exposure limits: Use industrial hygiene equipment to ensure that exposure does not exceed applicable national exposure limits. The limits defined under section 3 can be used as guidance. Unless noted, all values are for 8 hour time weighted average.

Biological limits: No available data

Personal protection:

Respiratory protection: Use an air purifying dust respirator when welding or brazing in a confined space, or when local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

Hands protection: Wear appropriate gloves to prevent skin contact.

EN 12477: Protection gloves for welders

Requirements (EN Levels)	Type A	Type B
Abrasion (Cycles)	2 (500)	1 (100)
Cut (Factor)	1 (1.2)	1 (1.2)
Tear (Newton)	2 (25)	1 (10)
Puncture (Newton)	2 (60)	1 (20)
Burning Behaviour	3	2
Contact Heat	1	1
Convective Heat	2	-
Small Splashes	3	2
Dexterity	1 (11)	4 (6.5)

Type B gloves are recommended when high dexterity is required as for TIG welding, while type A gloves are recommended for other welding processes. The contact temp (ºC) is 100 and the threshold time (seconds) >15.

Eyes protection: Welder's helmet or face shield with colour absorbing lenses. Shield and filter to provide protection from harmful UV radiation, infra red and molten metal approved to standard EN379. Filter shade to be a minimum of shade 9.

Skin protection: Heat-resistant protective clothing. Wear safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Clothing should be selected to suit the level, duration and purpose of the welding activity.

Class 1	
Impact of Spatter	**15 Drops**
Heat Transfer (radiation)	**RHTI 24 ≥ 7 seconds**
Process	**Manual welding with light formation of spatter and drops** • **Gas Welding** • **TIG Welding** • **MIG Welding** • **Micro plasma welding** • **Brazing** • **Spot Welding** • **MMA Welding (with rutile-covered electrode)**
Environmental Conditions	**Operation of machines** • **Oxygen cutting machines** • **Plasma cutting machines** • **Resistance welding machines** • **Machines for thermal spraying** • **Bench welding**

Class 2	
Impact of Spatter	**25 Drops**
Heat Transfer (radiation)	**RHTI 24 ≥ 16 seconds**
Process	**Manual welding with heavy formation of spatter and drops** • **MMA welding (with basic or cellulose-covered electrodes)** • **MAG welding (with CO2 or mixed gases)** • **MIG Welding (with high current)** • **Self shielded flux core arc welding** • **Plasma cutting** • **Gouging** • **Oxygen cutting** • **Thermal spraying**
Environmental Conditions	**Operation of machines** • **In confined spaces** • **At overhead welding/cutting or in comparable constrained positions**

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance: Powder
Color: White
Odour: Odourless
Odour Threshold: Not Available
pH Value: Not Available
Specific Gravity: Not Available
Melting Point/Melting Range: 500° C
Freezing Point: Not Available
Boiling Point/Boiling Range (° F @ 760 mmHg): N/A
Flash point: Not Available

Evaporation Rate: Not Available
Self-in flammability: Not Available
Explosion limits: Not Available
Vapour pressure: (mm Hg): NA
Vapour density: (Air= 1**):** NA
Density at 20ºC: Not Available
Percent volatile by volume: 1%
Bulk Density: Not Available
Relative density: Not Available
Solubility: Unlimited
Reactivity in Water: Exothermic.
Partition coefficient: Not Available
Auto-ignition temperature: Not Available
Decomposition temperature: Not Available
Other Information: No available data

10. STABILITY AND REACTIVITY:

Chemical Stability: This product is stable under normal conditions.
Hazardous Reactions: Hydrogen chloride fumes, fluorides with high heat.
Conditions to Avoid: Excess heat or cold. Metals Contact with acids liberates very toxic gas.
Incompatible Materials: Glass or porcelain.
Hazardous Decomposition Products: When this product is used in a welding process, hazardous decomposition product would include those from volatilization, reaction or oxidation of the material listed in section 3 and those from the base metal and coating. The amount of fumes generated from this product varies with welding parameters and dimensions.
Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in section 3. Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quality of fumes and gases produced.

11. TOXICOLOGICAL INFORMATION:

Acute Effects: Lithium Chloride is an antidepressant/antipsychotic and may affect behavior/Central Nervous System (drowsiness, mental confusion, somnolence, muscle weakness, contraction, spasticity, tremors) if ingested in high doses. It may also affect brain (degenerative changes), metabolism (anorexia), vision (blurred vision), blood, urinary system, cardiovascular system, and liver. Zinc Chloride affects behavior/ Central Nervous System (central nervous system depression), the urinary system (kidney damage – hematuria, oliguria, and renal failure), cardiovascular system, respiration (dyspnea), metabolism, pancreas (elevated amylase, and glucose levels), liver enzymes, and blood (changes in white and red blood cell count, changes in serum composition). Sodium Fluoride may affect behavior/Central Nervous System/Nervous System (headache, nervousness, dizziness, seizures, convulsions, tremors, muscle weakness, somnolence, respiration (respiratory depression, dyspnea), cardiovascular system (weak pulse, hypotension, dysrhythmias, cardiac arrest), liver, urinary system (polyuria, polydipsia), brain, metabolism (loss of appetite, hypcalcemia, hyperkalemia, and hypo magnesia), teeth, bones, and blood (changes in red and white blood cell counts, interference in blood coagulation).
Eye Contact: may cause severe irritation with possible eye burns and irreversible eye injury. Also it may cause corneal ulceration, chemical conjunctivitis, and opacification, and glaucoma and severe iritis.
Skin Contact: Causes skin irritation with possible burns, especially if skin is wet or moist. Also it may be absorbed by the skin.
Inhalation: may cause severe respiratory tract irritation, headache, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), delayed lung edema, bronchial asthma. Inhalation of fumes may cause mental fume fever. It is characterized by flu-like symptoms (fever, chills, cough, muscle pain, weakness), chest pain. Also may cause irritation and chemical burns of the respiratory tract with coughing, breathing difficulty and possibly nasal septum perforation and coma.

Ingestion: Harmful if swallowed. Also it may cause severe digestive tract irritation with thirst, salivation, nausea, vomiting, hypermotility, diarrhea, abdominal pain, possible burns (corrosion and permanent tissue destruction) of the esophagus and digestive tract and perforation of the stomach and possible death.

LD/LC50 Values that are relevant for classification		
Lithium Chloride 7447-41-8		
Oral	LD50	526 mg/kg (rat)

LD/LC50 Values that are relevant for classification		
Zinc Chloride 7646-85-7		
Oral	LD50	350 mg/kg (rat)
	LC50	.4 – 2.2 mg/l (96h) (carp)

LD/LC50 Values that are relevant for classification		
Potassium Chloride 7447-40-7		
	LC50	880 mg/l (96h) (fathead minnow)

LD/LC50 Values that are relevant for classification		
Sodium Fluoride 7681-49-4		
Oral	LD50	31 mg/kg (rat)
Oral	LD50	44 mg/kg (mouse)
Oral	LD50	200 mg/kg (rabbit)
Oral	LD50	100 mg/kg (domestic animals)
Oral	LD50	110 mg/kg (wild bird)
Intraperitoneal	LD50	22 mg/kg (rat)
Intravenous	LD50	26 mg/kg (rat)
Subcutaneous	LD50	175 mg/kg (rat)
Intraperitoneal	LD50	38 mg/kg (mouse)
Intravenous	LD50	50.83 mg/kg (mouse)
Subcutaneous	LD50	.115 mg/kg (mouse)
Intravenous	LD50	26.6 mg/kg (monkey)
	LC50	200 mg/l (96h) (rainbow trout)

Chronic Effects: Lithium Chloride may affect behaviour/ Central Nervous System and cardiovascular system, and have similar affects to acute ingestion. Zinc Chloride may cause defatting and dermatitis with repeated or prolonged skin contact. Sodium Fluoride may cause fluorosis. Effects of Fluorosis may include joint pain, weakness, limited joint mobility, brittle bones, ossification on x-ray, thickening of long bone cortices, calcification of ligaments, osteomalacia, osteosclerosis (skeletal (bone and teeth) abnormalities) and mottled tooth enamel. Other symptoms may include anemia, nausea, vomiting, diarrhea or constipation, kidney damage and weight loss/anorexia. Chronic inhalation may cause bronchitis to develop with cough, phlegm, and/or shortness of breath, and liver complications (hepatic enzymes increased, jaundice). Prolonged or repeated exposure to sodium fluoride can cause damage to the lungs.

12. ECOLOGICAL INFORMATION:

Toxicity: No available data.
Persistence and Degradability: No available data.
Bio accumulative Potential: No available data.
Mobility in Soil: No available data.
Other Adverse Effects: No available data.

Do not allow undiluted product or large quantities to reach ground water, water course or sewage systems. Do not allow product to be released in the environment without proper governmental permits. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS:

Product: For product elimination, consult recycling companies or appropriate local authority.
Package: May be disposed in approved landfills provided local regulations are observed.

14. TRANSPORT INFORMATION:

UN-number: UN1759
UN proper shipping name: Corrosive solid, NOS,
Transport hazard class: 8
Packing group: III
Environmental hazards: Not applicable
Special precautions for users: Not applicable
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: No international regulations or restrictions are applicable.

15. REGULATORY INFORMATION:

Safety, health and environment regulations/legislation specific for the substance or mixture: Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.
Warning: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation. Electric shock can kill. Arc rays and sparks can injure eyes and burn skin. Wear correct hand, head, eye and body protection.
Chemical safety assessment: No
USA: Under the OSHA Hazard Communication Standard, this product is considered hazardous. This product contains or produces a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et seq.) United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.
EPCRA/SARA Title III Toxic Chemicals
The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA reporting. See Section 3 for weight percentage.

16. OTHER INFORMATION:

The information in this document is believed to be correct as of the date issued. However, no warranty is expressed to be implied regarding the accuracy or completeness of this information. This information and product are furnished on the condition that the person receiving them shall make his own determinations as to the suitability of the product for his particular purpose and on the condition that he assumes the risk of his use thereof.
This Material Safety Data Sheet complies with the EC directives 91/155/EEC and 93/112/EEC, including modifications 2001/58/EC.
Complies with OSHA Communication Standard 29 CFR 1910.1200 and Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499

Hazard Statements:
H301 – Toxic if swallowed.
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H335 – May cause respiratory irritation.

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H410 – Very toxic to aquatic life with long lasting effects
H411 – Toxic to aquatic life with long lasting effects.
R-Phrases:
R22 – Harmful if swallowed.
R25 – Toxic if swallowed.
R34 – Causes burns.
R36/38 – Irritating to eyes and skin**.**
R36/37/38 – Irritating to eyes, respiratory system and skin.
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.
S-Phrases:
S22 – Do not breathe dust.
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection.
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.

End of the document.