Handy Flux

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

216-FLXH1H

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

Supplier Information:
Santa Fe Jewelery Supply
1513 Fifth Street Santa Fe, NM 87505

EMERGENCY TELEPHONE NO.
(212) 207-2632

TRADE NAME AND SYNONYMS
Handy Flux #3 AWS Class 3A

CHEMICAL FAMILY
Potassium salts of fluorine and boron

FORMULA
2.6K/1.0B/1.8F in H_2O

SECTION II · HAZARDOUS INGREDIENTS *

Filler Metal & Flux Components	CAS#	% (+)	ACGIH** TLV-TWA	Decomposition Products	CAS#	% (+)	ACGIH** TLV-TWA
Potassium Fluoborate (KBF_4)	14075-53-7	<26.	2.5mg/m³	Boron Trifluoride (BF_3)	7637-07-2	<14.	1ppm***
Potassium Hydroxide (KOH)	1310-58-3	<21.	2. "*** C	Hydrogen Fluoride (HF)	7664-39-3	<8.5	3ppm
Boric Acid (K_3BO_3)	10043-35-3	<38.	N.A.	Potassium Fluoride (KF)	7789-23-3	<34.	2.5mg/m
Potassium Tetraborate ($K_2B_4O_7$)	1332-77-0	<38.	N.A.	Boron Oxide (B_2O_3)	1303-86-2	<29.	10.mg/m
Water (H_2O)	7732-18-5	<30.	N.A.				

+) Exact reaction is not known, therefore percentages listed are maximum values possible.

* Thought should also be given to the filler metal and base metals being joined and to possible base metal coating which could emit fumes on heating, depending on their particular chemistry.

** Approximate milligrams of substance per cubic meter of air or parts per million- Time weighted average per workday. (See ANSI/AWS F1.1-78 for sampling and testing method

*** C Denotes "Ceiling Limit" = not to be exceeded at any time.

BOILING POINT (°F.)	212°F	SPECIFIC GRAVITY (H_2O=1)	1.67
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	N.A.
SOLUBILITY IN WATER	N.A.	pH = DH (fused) =	8.0 -8.5 5.5 (approx.
APPEARANCE AND ODOR	White paste - no odor		

SECTION IV · FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N.A.	FLAMMABLE LIMITS N.A.	Lel	Uel
EXTINGUISHING MEDIA	N.A.			
SPECIAL FIRE FIGHTING PROCEDURES	N.A.	N.F.P.A. Code No. 704:		
		Hazard	Color Code	Signal No.
UNUSUAL FIRE AND EXPLOSION HAZARDS	N.A.	Health	(Blue)	1
		Flammability	(Red)	0
		Reactivity	(Yellow)	1

(Continued on reverse side)

EMERGENCY AND FIRST AID INSTRUCTIONS

Inhalation: Get victim to fresh air. Give artificial respiration if necessary. Seek medical attention.

Skin: Wash contaminated area with running water until the "soapy" feeling disappears. Seek medical attention, if necessary.

Eyes: Wash eyes with running water for at least 15 minutes. Seek immediate medical attention.

Ingestion: Do not induce vomiting. Give large amounts of water or milk. Seek immediate medical attention. Note: Never force an unconscious person to drink.

Note to Physician: Dilute with water, milk or weak acid. Gastric lavage and emetics are contraindicated. As soon as pain and shock are controlled, presence or absence of esophageal injury should be determined.

FIRE AND EXPLOSION INFORMATION

General: Non-flammable or explosive

REACTIVITY

General: Extremely corrosive.

Materials to Avoid: Separate from acids, metals, explosives, organic peroxides and easily ignitible materials; contact may release heat and poisonous gases.

Conditions to Avoid: When the solid comes in contact wih moisture or water, it can generate enough heat to ignite combustible materials.

PROTECTIVE MEASURES

Storage and Handling: Store in a dry place. Protect container from water or moisture and against physical damage.

Engineering Controls: Use in an area that is dry or has a dehumidifer. Eyewash stations and showers should be readily available.

Protective Clothing (Should not be substituted for proper handling and engineering controls): If contact is likely wear rubber gloves, aprons, boots and safety glasses.

Protective Equipment: For levels up to 100 mg/m^3 use a high-efficiency particulate respirator with a full facepiece, a supplied-air respirator with a full facepiece, helmet or hood, or a self-contained breathing appartus with a full facepiece. For up to 200 mg/m^3 use a powered air-purifying respirator with a high-efficiency filter and full facepiece or a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode. For escape from a contaminated area use a dust and mist respirator or a self-contained breathing appartus with a full facepiece.

PROCEDURES FOR SPILLS AND LEAKS

Wear protective clothing. For the solid, sweep into large vessel containing a large amount of water. Neutralize with weak hydrochloric acid. For solution, neutralize with weak hydrochloric acid. Pick up with mop or water vacuum. For final disposal contact your regional office of the New York State Department of Environmental Conservation.

For more information: Contact the Industrial Hygienist or Safety Officer at your worksite or the New York State Department of Health, Bureau of Toxic Substance Assessment, Empire State Plaza, Corning Tower Building, Albany, New York 12237.

Hawley Files

Chemical Fact Sheet*

Version 2 - June 1984

SODIUM HYDROXIDE **

The information in this sheet applies to workplace exposure resulting from processing, manufacturing, storing or handling and is not designed for the population at large. Any generalization beyond occupational exposures should not be made. The best industrial hygiene practice is to maintain concentrations of all chemicals at levels as low as is practical.

Chemical Names: Caustic soda, sodium hydrate, white caustic; CAS 1310-73-2.

Trade Names: Ascarite, Collo-grillrein, Collo tapetta and others.

Uses: Used to neutralize acids; in the manufacture of rayon, cellophane, soap and others.

PHYSICAL INFORMATION

Appearance: A white solid in the form of flakes, pellets, cakes, chips or sticks. Also available as a clear, colorless water solution.

Odor: None.

Behavior in Water: Very soluble in water.

HEALTH HAZARD INFORMATION

OSHA Standard: Average 8 hour exposure -- 2 mg/m^3.

NIOSH Recommended Limit: Average 8 hour exposure -- 2 mg/m^3.

ACGIH Recommended Limit: 2 mg/m^3.

Short Term Exposure:

Inhalation: Can cause severe irritaion of the nose and throat and inflammation of the lungs.

Skin: Can cause deep burns and severe irritation.

Eyes: Can cause severe irritation, corneal burns and blindness.

Ingestion: Can cause burning of the mouth and throat, nausea, vomiting, abdominal pains and diarrhea (occasionally with blood). Can also cause swelling of the larynx and subsequent suffocation, holes in stomach and intestines, heart failure, coma. Death has resulted from swallowing less than 1/3 ounce of the solid.

Long Term Exposure:

Skin irritation may develop from repeated exposure to the solid or low concentrations of the liquid. Irritation to the lungs, nose, throat and mouth may occur if exposed to low levels for long periods of time.

*Prepared by the Bureau of Toxic Substance Assessment, New York State Department of Health. For an explanation of the terms and abbreviations used, see "Toxic Substances: How Toxic is Toxic" available from the New York State Department of Health.

**POTASSIUM HYDROXIDE SHOULD EXHIBIT SIMILAR EXPOSURE CHARACTERISTICS

THRESHOLD LIMIT VALUES: TLV Inhalation for fluoride is 2.5 mg/m^3 or 3 ppm of air; TLV for KOH is 2 mg/m^3 ceiling; Boron Oxide = 10 mg/m^3; TLV for BF_3 is 1 ppm ceiling.

MAJOR EXPOSURE HAZARD - INAHALATION

CUMULATIVE LIMITS: Welding (Brazing) Fumes - Total particulate ($C_1 + C_2 + \ldots C_N$) $\leq$ 5 mg/m^3; (C=Concentration: T=TLV) $C_1/T_1 + C_2/T_2 + \ldots C_N/T_N \leq 1$); See Section IX

EFFECTS OF OVEREXPOSURE: Toxic fluorides are poisonous if swallowed TXDS-orl-rat LD5o; 245 mg/m^3 Lethal oral dose infants 2 to 3 grams, adults 10-15 grams. KOH is both toxic (TXDS: orl-rat-LD5o: 365 mg/m^3 and an irritant. Prolonged and continual contact may cause dermatitis. Overexposure to decomposition products on heating (largely Boron Trifluoride Gas) is Toxic TXDS: ihl-rat-LCLo: 750 ppm/5.5H.

EMERGENCY AND FIRST AID PROCEDURE: Victims of acute overexposure to fume (unlikely in ordinary usage) should be removed from contamination area, and given artificial respiration if breathing has stopped. If swallowed, induce vomiting by sticking finger down throat or by giving soapy or strong salty water to drink. Repeat until vomit is clear. Never give anything by mouth to an unconscious person. Wash exposed areas of skin or eyes with large quantities of water.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Stable at room temperature

INCOMPATABILITY N.A.

HAZARDOUS DECOMPOSITION PRODUCTS: Fluoride fumes or gas, BF_3 gas on heating during brazing. Also B_2O_3 (See Section V).

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Avoid contact with skin or eyes. Dilute and wash spillage with water. Avoid high temperature. Wear rubber gloves during spill clean-up.

WASTE DISPOSAL METHOD: All effluent ingredients are inorganic. Biodegradability N/A. Local regulations may require the removal of fluorides and suspended trace metals before discharge of final effluent. Chemical precipitation by addition of lime or other reagents, followed by removal of the precipitate by settling and/or filtration has proven simple and effective. The resulting precipitate containing Calcium Fluoride and Metal Carbonates (or Hydroxides) should be tested to determine if it is a hazardous waste, or, not. Dispose of only, through a licensed disposal firm, at a secure chemical landfill location.

SECTION VIII- SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: None for brazing in properly ventilated area. In confined space use an airline respirator or hose mask, NIOSH, U.S. Bureau of Mines approved hose Type C or self-contained air respirator.

VENTILATION: (For fumes & gases.)	LOCAL EXHAUST:	Air flow to produce velocity of 100 lineal Ft./min in brazing zone.
	MECHANICAL:	2,000 cu. ft./min/brazer (see footnote).
	NATURAL (MIN):	10,000 cu. ft./brazer - 16ft. ceiling - No obstructions.

PROTECTIVE GLOVES: Leather welding gloves.

EYE PROTECTION: Plastic frame safety spectacles with side shields - filter lenses shade #3 or 4.

OTHER PROTECTIVE EQUIPMENT: Normal clothing for torch brazing. (Avoid flammable fabrics)

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Maintain flux at normal room temperature. Flux should be used with the recommended temperature of (1050 - 1600°F). This flux is often used with brazing filler metals containing cadmium. Cadmium oxide fume (TLV=.05mg/m^3 is a greater hazard than fluoride fume from flux. Zinc oxide fume may also be emitted from the filler metal during brazing. (TLV = 5. mg/m^3).

FOOTNOTE: 1) Refer to ANSI Z49.1, "Safety in cutting and Welding", published by the American Welding Society, P.O. Box 351040, Miami, FL 33135.

2) Handy Flux is not classified as a hazardous material and there are no D.O.T. Shipping Restrictions in C.F.R.49 (No D.O.T. Shipping Name or UPS UN No.)

12/31/85