













SECTION 1 - IDENTIFICATION

Manufacturer: Black Swan Mfg. Co. 4540 W. Thomas St. Chicago, IL 60651-3318 Tel.: 800-252-5796 Fax: 773-227-3705 Web Site : www.blackswanmfg.com E-mail : info@blackswanmfg.com	For any Transportation or Medical Chemical Emergencies call: <p style="text-align: center;">INFOTRAC</p> <p style="text-align: center;">(800) 535-5053 OR (352) 323-3500</p> <p style="text-align: center;">24 hours per day - 7 days a week</p>
Product Name: Tuf-Flux	Recommended Use: To prepare copper tubing and fittings for soldering.

SECTION 2 – HAZARD(S) IDENTIFICATION

<p>Labels</p>  <p>Signal Word Warning</p> <p>HMS</p> <table border="1" data-bbox="105 934 324 1071"> <tr><td>HEALTH</td><td>1</td></tr> <tr><td>FLAMMABILITY</td><td>1</td></tr> <tr><td>REACTIVITY</td><td>0</td></tr> </table>	HEALTH	1	FLAMMABILITY	1	REACTIVITY	0	<p>NFPA</p> <table border="1" data-bbox="389 735 803 1008"> <tr> <td>HEALTH HAZARD 4 – Deadly 3 – Extreme Danger 2 – Hazardous 1 – Slight Hazardous 0 – Normal Material</td> <td></td> <td>FIRE HAZARD Flash Points 4 – Below 73°F 3 – Below 100°F 2 – Above 100°F, Not exceeding 200°F 1 – Above 200°F 0 – Will not burn</td> </tr> <tr> <td>SPECIFIC HAZARD Oxidizer OX Acid ACID Alkali ALK Corrosive COR Use NO WATER  Radioactive </td> <td></td> <td>REACTIVITY 4 – May detonate 3 – Shock and heat may detonate 2 – Violent chemical change 1 – Unstable if heated 0 – Stable</td> </tr> </table>	HEALTH HAZARD 4 – Deadly 3 – Extreme Danger 2 – Hazardous 1 – Slight Hazardous 0 – Normal Material		FIRE HAZARD Flash Points 4 – Below 73°F 3 – Below 100°F 2 – Above 100°F, Not exceeding 200°F 1 – Above 200°F 0 – Will not burn	SPECIFIC HAZARD Oxidizer OX Acid ACID Alkali ALK Corrosive COR Use NO WATER  Radioactive 		REACTIVITY 4 – May detonate 3 – Shock and heat may detonate 2 – Violent chemical change 1 – Unstable if heated 0 – Stable	<p>GHS Classification</p> <table border="1" data-bbox="820 745 1567 987"> <tr> <td>Health Acute Toxicity: Not Established Skin Irritation: Not Established Eye Irritation: Cat. 2A Skin Sensitization: Yes</td> <td>Environmental Acute Aquatic Toxicity: Not Established Chronic Aquatic Toxicity: Not Established</td> </tr> <tr> <td colspan="2">Physical None</td> </tr> </table>	Health Acute Toxicity: Not Established Skin Irritation: Not Established Eye Irritation: Cat. 2A Skin Sensitization: Yes	Environmental Acute Aquatic Toxicity: Not Established Chronic Aquatic Toxicity: Not Established	Physical None	
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<p>Hazardous Statements</p> <p>H302: Harmful if swallowed H315: Causes skin irritation H319: Causes serious eye irritation</p>	<p>Precautionary Statements</p> <p>P102: Keep out of reach of children P262: Do not get in eyes, on skin, or on clothing P264: Wash thoroughly after handling P281: Use personal protective equipment as required</p>																	

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemicals</u>	<u>CAS#</u>	<u>EINECS#</u>	<u>REACH</u> <u>Pre-registration Number</u>	<u>Approx %</u>
ZINC CHLORIDE	7646-85-7	231-592-0	N/A	10-25%
AMMONIUM CHLORIDE	12125-02-9	235-186-4	N/A	10-25%
PETROLATUM	8009-03-08	N/A	N/A	70-90%

*Unlisted ingredients are not classified as hazardous according to OSHA 1910.1200.

SECTION 4 – FIRST-AID MEASURES

<p>Inhalation: Move into fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and call physician. Skin: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If rash or burn appears consult a physician. Eyes: Flush with water for 15 minutes. If irritation persists, get medical attention. Ingestion: Get immediate medical attention. Rinse mouth. DO NOT INDUCE VOMITING.</p>
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SECTION 5 – FIRE-FIGHTING MEASURES

Fire Hazard: May release ZnO and HCl fumes. Heat may build up pressure and rupture closed containers.
Combustion Products: None known.
Extinguishing Media: Carbon Dioxide, Dry Chemical, Foam or Water Fog.
Unsuitable Extinguishing Media: None known.
Protective Equipment: Self-contained breathing apparatus {(SCBA), MSHA/NIOSH}. Full protective gear.
Special Fire Fighting Procedures: Evacuate enclosed areas, stay upwind. Closed or confined quarters require self-contained breathing apparatus, positive pressure hose masks or airline masks. Full protective equipment required. Toxic metal halide fumes may be produced. Use water spray to cool containers, to flush spills from sources of ignition and to disperse vapors.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions: Prevent contact with skin or eyes. Do not breathe fumes. Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high.
Protective Equipment: Wear suitable respiratory protective equipment.
Emergency Procedures: Remove all sources of ignition and ventilate area. For leaks, stop leak if it can be done safely. Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions: Avoid runoff into storm sewers, ditches and waterways.
Methods for Cleaning Up: Contain spill, absorb, sweep-up and dispose to prevent footing hazard. Flush area to chemical sewer.

SECTION 7 – HANDLING AND STORAGE

Handling

Avoid contact with eyes and skin. Avoid prolonged breathing of vapor and mist. Use with adequate ventilation. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep products away from heat, sparks, flames and all other sources of ignition. Keep containers closed when not in use. Empty containers may contain residues; treat as if full and observe all product precautions. Do NOT reuse empty containers.

Storage

Store in a cool, dry, well-ventilated area away from incompatible materials. Keep container closed when not in use. Keep away from heat, sparks, open flame and other sources of ignition. **Incompatible Materials:** None known.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits

<u>Hazardous Chemicals</u>	<u>ACGIH-TLV</u>	<u>ACGIH-STEL</u>	<u>OSHA-PEL</u>
ZINC CHLORIDE	1 mg/m ³	N/A	1 mg/ m ³
AMMONIUM CHLORIDE	10 mg/ m ³	N/A	10 mg/ m ³
PETROLATUM	N/A	N/A	N/A

Engineering Controls: A source of running water to flush or wash the eyes and skin in case of contact. Use local exhaust as needed.
Ventilation: Local exhaust adequate.
Personal Protective Equipment – Respiratory: In confined, poorly ventilated areas, use NIOSH/MSHA approved air purifying or supplied air respirators during soldering operations until fumes have dissipated.
Personal Protective Equipment – Skin: Rubber gloves and coveralls.
Personal Protective Equipment – Eyes: Safety goggles.

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

Appearance: Tan/Gold	Flash Point: >400°F (204°C)	Vapor Pressure: <0.01@68°F (20°C)
Odor: Petroleum	Specific Gravity: 1.06	Flammability: Not Established
pH: Not Established	Solubility (H2O): Insoluble	Flammability Limits: LEL – Not Established
Melting Point: 120°F-150°F	Evaporation Rate: Not Established	UEL – Not Established
Freezing Point: Not Established	Vapor Density: Not Established	
Boiling Point: Not Established	VOC: 0 g/l	

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SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable.

Hazardous polymerization: Will not occur.

Conditions to avoid: None known.

Incompatible materials: None known.

Hazardous decomposition products: None known.

SECTION 11 – TOXICOLOGICAL INFORMATION

<u>Hazardous Chemicals</u>	<u>Toxicity</u>	
	<u>LD₅₀</u>	<u>LC₅₀</u>
ZINC CHLORIDE	Oral – 350 mg/kg (rat)	Inhalation – 1960 mg/m ³ /10m (rat)
AMMONIUM CHLORIDE	Oral – 1650 mg/kg (rat)	Inhalation – N/A
PETROLATUM	N/A	N/A

Likely Routes of Exposure: Inhalation, Skin Contact, Eye Contact and Ingestion.

Symptoms and Effect - Inhalation: Irritation to respiratory system. **Skin Contact:** May cause skin irritation. **Eye Contact:** Intense irritation to eyes and injury. **Ingestion:** Nausea, vomiting, irritation to digestive system.

Long-Term Effect: Short-term effects to liver and kidney can occur. No long-term effect known.

Pre-Existing Conditions: Existing or Chronic diseases of the eyes, skin, respiratory system, cardiovascular system, gastrointestinal system, liver, or kidneys may have increased susceptibility to excessive exposure.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: Zinc Chloride – 7.2 ppm/96hr/medium bluegrill/TLm

Ammonium Chloride – 6 ppm/96hr/sunfish/TLm

Persistence & Degradability: None known.

Bioaccumulative Potential: None known.

Mobility in soil: In normal use, emission of Volatile Organic Compounds (VOC's) to the air takes place, typically at a rate of 0 g/l.

SECTION 13 – DISPOSAL CONSIDERATION

Dispose of product or container in accordance with federal, state or local regulations.

SECTION 14 – TRANSPORTATION INFORMATION

D.O.T. (U.S.): Not Regulated.

SECTION 15 – REGULATORY INFORMATION

Precautionary Label Information: Irritant and Health Hazard.

Risk Phrases: R22-Harmful if swallowed. R41-Risk of serious damage to eyes.

Safety Phrases: S2-Keep out of reach of children. S9-Keep container in a well-ventilated place. S16-Keep away from sources of ignition-No smoking. S25-Avoid contact with eyes. S26-In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

SECTION 16 – OTHER INFORMATION

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act and shall not be used for any other purpose. Black Swan Mfg. Co. urges the customers receiving this Material Safety Data Sheet to study it carefully to become aware of the hazards, if any, of the product involved. In the interest of safety, you should notify your employees, agents and contractors of the information on the sheets.

DATE: 01/01/2023