

Safety Data Sheet

AdvantEdge Alkaline Starter

Section 1- Product and Company Identification

Supplier

ShoreMet LLC
3601 Enterprise Ave
Valparaiso, IN 46383

Manufacturer

ShoreMet LLC
3601 Enterprise Ave
Valparaiso, IN 46383

Company Contact: Travis Lechien

Telephone Number: (219) 390-3336 x300

Emergency Contact & Phone Number:

Emergency Phone Number: 800-535-5053 and +1 352-323-3500 in the USA and Canada

Product Name: AdvantEdge Alkaline Starter

Alternative Names: Max Etch 20 Starter, Final Etch 5 Starter, High Speed Hub Etch Starter, AdvantEdge TF Starter, UltraEtch FL Make Up, UltraEtch Make Up ACD, Copper Ammonium Chloride

Recommended Use/Restrictions on Use: Copper etchants designed for high volume production of printed circuit boards. For use in accordance with directions only.

General Comments: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, explosion, or accident involving chemicals. All non-emergency questions should be directed to customer service.

Section 2- Hazards Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;



Warning

Hazard Statements

DANGER: May be corrosive to metals. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. Causes severe eye damage Causes skin irritation. May cause breathing difficulties if inhaled. Toxic to aquatic life.

Precautionary Statements

Keep only in original container. Absorb spillage to prevent material damage. Store in corrosive resistant container with a resistant inner liner. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. If swallowed, immediately rinse mouth and contact a poison center. Store locked up. Dispose of contents / containers in accordance with applicable regulations. Wear protective gloves / clothing and eye / face protection. Do not breathe mist. If on skin (or hair) Remove clothing, and shower. Wash contaminated clothing before reuse. If in eyes; Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing and immediately contact a poison center. If swallowed: Rinse mouth. Do not induce vomiting. If inhaled: Remove to fresh air and keep at rest in a position comfortable for breathing. Avoid release to the environment. Collect spillage.

GHS Classification

Corrosive to Metals, Category 1

Acute Toxicity, Category 4

Category 1, Eye Irritant

Skin Irritant, Category 2

Respiratory Sensitizer, Category 1

Aquatic Toxicity, Category 2

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Hazards not otherwise classified (HNOC) or not covered by GHS

None

Section 3- Composition/Information on Ingredients

Ingredient	CAS Number	EC Number	Percent of Total Weight
Tetraamine Copper Dichloride (as copper compounds)	10534-87-9	10534-87-9	20-35%
Ammonium Hydroxide	1336-21-6	215-647-6	3-8%
Ammonium Chloride	12125-02-9	235-186-4	2-6%
Ammonium Carbonate	506-87-6	208-058-0	1-4%
Water	7732-18-5	231-791-2	balance

Section 4- First Aid Measures

First Aid: General Measures	Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on their back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor or hospital.
First Aid: Eyes	Immediately irrigate eyes with flowing water continuously for a minimum of 15 minutes, while holding eyes open and washing beneath eyelids. Contacts must be removed before or during flushing. Speed in rinsing eyes after contact is essential to prevent serious injury. Obtain medical attention immediately.
First Aid: Skin	Immediately flood affected skin area with water (safety shower is preferable) and remove clothing. Wash skin vigorously with flowing water and soap for at least 15 minutes. Do not apply salve or ointment. Continue washing in serious cases until medical help arrives, even for an hour or longer. Clothing should be discarded or washed before re-use. Obtain immediate medical attention.
First Aid: Ingestion	If victim is alert and not convulsing, rinse mouth with water and give large volumes of water to drink. If spontaneous vomiting occurs, have affected person lean forward with head down. Rinse mouth again, and give more water to drink. Obtain medical attention immediately.
First Aid: Inhalation	Remove affected person from area to fresh air and provide oxygen if breathing is difficult. Give artificial respiration ONLY if breathing has stopped, and give CPR ONLY if there is no breathing and no pulse. Obtain immediate medical attention.
Most Important Symptoms and Effects, both Acute and Delayed	After inhalation of dust, dry/sore throat. Irritation of the respiratory tract and nasal mucous membranes. After contact with the eyes, slight irritation. After ingestion, gastrointestinal complaints, vomiting, abdominal pain and/or diarrhea. With continuous/repeated exposure/contact, skin rash/inflammation,

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	change in the hemogram/blood composition. Enlargement/affection of the liver. Decreased renal function.
Indication of Immediate Medical Attention and Special Treatment Needed	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
First Aid: Note to Physician	Treat patient symptomatically. Gastric lavage may be preferable to inducing vomiting due to corrosive effects of Ammonium Hydroxide. Dilution with milk or water may help. Endoscopic evaluation of the patient may be warranted.

Section 5- Firefighting Measures

Suitable Extinguishing Media	Dry chemical, Carbon Dioxide, Water Spray or Foam
Fire and Explosion Hazards	Flammable vapors may be given off when exposed to heat, especially in closed containers. Vapors may form an explosive mixture with air.
PPE and Precautions for Firefighter	Avoid breathing vapors and keep upwind of fire. Move containers from area of fire if safely possible. Spray or fog of water is effective on ammonia vapors. Firefighters should use NIOSH-approved self-containing breathing apparatus (SCBA) with positive pressure full-face piece and wear impervious protective clothing.

Section 6- Accidental Release Measures

Required PPE, Equipment and Procedures	Avoid contact with skin, eyes and clothing. Wear protective clothing, gloves and eye protection. Keep unauthorized personnel away from the area. Isolate spill or leak area for at least 50 meters (150 ft.) for liquids.
Environmental Precautions	Do not dump in to any sewers, on the ground, or in to any water body.
Methods and Materials for Containment and Cleanup	Dike spills with sand or inert solid, and place in to drums or other containers that can be sealed. Very small spills may be flushed with large quantities of water and diluted.

Section 7- Handling and Storage

Handling Precautions	Avoid contact with skin, eyes and clothing. Wear proper protective clothing, gloves and eye protection. Wash thoroughly after handling this product. Avoid breathing vapor or mist by using respiratory protective equipment.
Storage Precautions	Store in a cool, well ventilated, dry location that is protected from physical damage, heat, or direct sunlight which may cause the product to partially decompose. Keep from freezing. Do not apply heat to thaw. If frozen, allow the product to thaw at room temperature and mix in drum before using.

Section 8- Exposure Controls/Personal Protection (Continued)

Occupational Exposure Limit Values	Ammonium Carbonate: OSHA PEL: Not established for this material
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	Ammonium Chloride: OSHA PEL: Not established for this material ACGIH TLV (Fumes): 10mg/m ³ (8 Hr. TWA), 20mg/m ³ (STEL) Ammonium Hydroxide OSHA PEL: 50ppm (8 Hr. TWA for NH ₃) ACGIH TLV: 25ppm (8 Hr. TWA for NH ₃), 35ppm (15 min STEL for NH ₃)
Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Recommended guidance documents include "Industrial Ventilation, A Manual of Recommended Practices," by ACGIH.
Individual Protection Measures	Wear appropriate eye protection such as safety glasses, face shield or splash goggles. Use chemical resistant gloves made of suitable material to prevent skin contact. The use of chemical resistant clothing is recommended. A NIOSH / MSHA approved respirator is necessary if a worker may be exposed to airborne contaminant levels exceeding the exposure limits given. For concentrations of ammonia vapors up to 300ppm, use an air purifying respirator (APR) with ammonia cartridge. APRs must not be worn when there is insufficient oxygen in the workplace. Ammonia concentrations at or above 300ppm require the use of a self-containing breathing apparatus (SCBA) or equivalent. It is the employer's responsibility to ensure that the proper respiratory protection is used, and that the worker is properly trained in the use and maintenance of respirators. Safety showers with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool tepid water, should be readily available in all areas where this material is handled or stored.

Section 9- Physical and Chemical Properties

Appearance	Clear, deep blue liquid
Odor	Distinctive odor of ammonia
Odor Threshold	Pungent ammonia odor at 5ppm.
pH	8.0 - 10.2
Melting Point /Freezing Point	Not Known. Product components crystallize from solution when temperature falls below 45°F.
Initial Boiling Point and Boiling Range	Boiling Point >212°F
Flash Point	None
Evaporation Rate	Not Known
Flammability	Non-Flammable
Upper / Lower flammability or explosive limits	Lower Explosive Limit: 15% (Ammonia Vapor in Air) Upper Explosive Limit: 28% (Ammonia Vapor in Air)
Vapor Pressure	20-28 mm Hg
Vapor Density	<1
Relative Density	Not Known
Solubility	Soluble in water.
Partition Coefficient; n-octanol / water	Not Known
Auto-Ignition Temperature	Not Known
Decomposition Temperature	Not Known

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Section 10- Chemical Stability and Reactivity Information

Chemical Stability	Stable at Room Temperature
Possibility of Hazardous Reactions	Hazardous polymerization will not occur.
Conditions to Avoid	Do not heat Ammonium Hydroxide solutions. Avoid direct sunlight. Protect from freezing. Use in a closed and contained system with proper ventilation.
Incompatible Materials	Highly reactive with metals and metal compounds. Avoid strong acids, oxidizing agents, halogens, nitrates and other nitrosating agents. Ammonium chloride reacts with lead and silver salts to form a fulminating compound. Ammonium chloride reacts with ammonium compounds, bromine pentafluoride, bromine trifluoride, hydrogen cyanide, iodine heptafluoride, nitrates (potentially explosive combinations may be formed) and potassium chloride.
Hazardous Decomposition Products	Nitrogen oxides, copper oxides and ammonia vapor. Ammonia vapors are emitted when liquid is exposed to air in an open vessel or by spraying.

Section 11- Toxicological Information

Exposure Routes	Dermal absorption, Inhalation, Ingestion
Delayed Effects	None Known
Acute Effects	Eye hazards: This product is strongly irritating to eyes. Direct eye contact may cause blurred vision, tearing, and severe tissue damage leading to temporary or permanent injury, including blindness. Skin Hazards: Causes irritation and burns to skin. Ingestion Hazards: Causes excessive salivation, nausea, vomiting, and corrosive burning of the gastrointestinal tract, including perforation. Lesser effects include sore throat, vomiting, metallic taste, hemorrhagic gastritis and diarrhea. Inhalation Hazards: Corrosive overexposure causes burning, irritation and destruction of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, sneezing, mucous production and sinus congestion. Other indications of overexposure are headache, nausea, vomiting, low-grade fever, and shortness of breath.
Chronic Effects	Repeated exposure may result in permanent damage to the upper respiratory tract, particularly the lungs.
Acute Toxicity Estimates	Ammonium Chloride Oral LD50 (Rat): 1,650mg/kg Ammonium Chloride Oral LD50 (Rabbit): 100mg/kg, Intramuscular LD50 (Rat): 30mg/kg, Intraperitoneal LD50 (Mouse): 485mg/kg Subcutaneous LD50 (Mouse): 500mg/kg Intravenous LD50 (Rabbit): 78mg/kg Severe Eye Irritation (Rabbit) 500mg/24 hrs. Ammonium Hydroxide Oral LD50 (Rat) 350mg/kg Ammonia LC50 (rat, one hour) 7,338 ppm.

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Section 12- Ecological Information

Ecotoxicity	The ecological toxicity of this product is not known. Due care should be taken to prevent uncontrolled releases of this product to surface water, soil, groundwater or air.
Persistence and degradability	Information concerning persistence and degradability is not known
Bioaccumulative potential	The bioaccumulative potential for this product is not known.
Mobility in soil	Information pertaining to mobility in soil is not known.
Other adverse effects	None Known.

Section 13- Disposal Considerations

Description of waste residues	Waste residues may consist of unused, expired product, spill residues, and commercial packaging.
Safe Handling and Disposal methods	Material that cannot be used or chemically reprocessed and empty containers should be disposed of in accordance with all applicable regulations. Product containers should be thoroughly emptied before disposal. Generators of waste material are required and are solely responsible for evaluating all waste for compliance with RCRA and any local disposal procedures and regulations.

Section 14- Transportation Information

UN Number	UN 3266
UN Proper Shipping Name	Corrosive liquid, basic, inorganic, N.O.S. (Ammonium Hydroxide, Ammonium Chloride)
Transport Hazard Class(es)	8 - Corrosive
Packing Group	PG II
Marine Pollutant	No
Special Precautions	RQ (Reportable Quantity) notation may be required. (Ammonium Hydroxide RQ = 1,000 pounds, Ammonium Chloride RQ = 5,000 pounds) DOT Emergency Response Guidebook Number 154

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Section 15- Regulatory Information

Applicable Regulations	US Regulatory Information TSCA: This product has been reported to the EPA Office of Toxic Substances in accordance with the requirements of the Toxic Substances Control Act (40 CFR 710). EPCRA: The following ingredients of this product are subject to reporting under SARA Title III, Section 313: Ammonia SARA: Acute Health Hazard based on Ammonia, Ammonium Hydroxide, and Ammonium Chloride. SARA: Chronic Health Hazard determination based on Ammonia. SARA Section 313 Notification This product contains Ammonia in concentrations at or above de minimus levels and which is listed as a toxic chemical in 40 CFR Part 372 pursuant to the requirements of Section 313 of Superfund Amendments and Reauthorization Act of 1986 (SARA). The act also requires that this notice accompany the SDS in all redistributions and may not be detached or omitted from future copies. Other International Regulations For regulatory requirements outside the United States of America, check with the appropriate regulatory agencies.
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Section 16- Other Information

Disclaimer	Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).
SDS preparer	ShoreMet
SDS revision date	March 1, 2024

Revision Log:

Revision	Date	Initiator	Description of Changes
	3/1/24		Original

This is the end of SDS for AdvantEdge Alkaline Starter