

MATERIAL SAFETY DATA SHEET

Copper Etch APS-100

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Copper Etch APS-100

Alternate Trade Name(s): APS-100

General Use: Etchant for copper and copper films.

Manufacturer

Transene Co.
10 Electronics Ave.
Danvers, Ma 01923
978-777-7860 fax# 978-739-5640
www.transene.com

Emergency Telephone Number

Chemtrec: 1(800)-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt%
Ammonium Persulfate	7727-54-0	15-20%
Water		75-80%

3. HAZARDS IDENTIFICATION

EMERGENCY OVRVIEW

Immediate Concerns:

Oxidizer. Decomposes in storage under conditions of excessive heat causing release of oxides of sulfur, nitrogen and oxygen that supports combustion. Decomposition could form a high temperature melt.

POTENTIAL HEALTH EFFECTS:

Ingestion may cause irritation to mouth and stomach. Prolonged exposure may cause skin sensitization.

4. FIRST AID MEASURES

Eyes:

Flush with water for at least 15 minutes. If irritation occurs and persist, obtain medical attention.

Skin:

Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

Ingestion:

Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything to an unconscious person. See medical doctor immediately.

Inhalation:

Remove to fresh air. If breathing difficulty or discomfort occurs or persists, contact a medical doctor.

Notes to medical doctor:

This product has a moderate oral toxicity and is minimally irritating to the eyes. Flooding of exposed areas with water is suggested, but gastric lavage or emesis induction for ingestion must consider the possible aggravation of esophageal injury and the expected absence of systemic effects. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

Flammable limits: Non- Combustible.

Extinguishing media:

Deluge with water.

Explosion hazards:

Product non-combustible. On decomposition releases oxygen which may intensify fire. presence of water accelerates decomposition.

Fire fighting procedures:

Do not use carbon dioxide or other gas filled fire extinguishers: they will have no effect on decomposing persulfates. Wear full protective clothing and self contained breathing apparatus.

Autoignition temperature:

Not applicable. No evidence of combustion up to 800° C. Decomposition will occur upon heating.

Flash point:

Non-combustible.

Sensitivity to static discharge:

Not available.

Sensitivity to impact:

Not available.

Hazardous decomposition products:

Oxygen that supports combustion and oxides of sulfur and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Release notes:

Spilled material should be contained and collected and put in approved DOT container and isolated for disposal as hazardous waste. Isolated material should be monitored for signs of decomposition (fuming/smoking). All disposals should be carried out according to regulatory agencies procedures.

7. HANDLING AND STORAGE

Handling:

Use adequate ventilation when transferring product. Wear respiratory protection if ventilation is not available. Use eye and skin protection when contact is expected. Use clean plastic or stainless steel scoops only.

Storage:

Store (unopened) in a cool, dry place away from point of heat, e.g. radiant heaters or steam pipes. Use first in, first out storage system. Avoid contamination of opened product. In case of fire or decomposition (fuming/smoking) deluge with plenty of water to control decomposition. For storage, refer to NFPA Bulletin 43A on storage of liquid and solid oxidizing materials

COMMENTS:

Ventilation: Provide mechanical general and/or local exhaust ventilation. Spills should be collected into suitable containers to prevent dispersion into the air.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits:

Chemical name:	TWA (ACGIH)	STEL/ceiling (ACGIH)	PEL OSHA	STEL/ceiling OSHA
Ammonium Persulfate	0.1 mg/m ³			

Engineering controls:

Provide mechanical and /or general room ventilation. Remove contaminated clothing immediately and wash before reuse.

Personal protective equipment

Eyes and Face: Use cup type chemical type goggles. Full- face shield may be used.
Respiratory: None required where ventilation is adequate. Appropriate respirator may be used.
Protective clothing: Rubber or neoprene gloves. Rubber or neoprene footwear. Normal work clothes.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: None
APPEARANCE: Clear liquid
PERCENT VOLATILE: 80-85%
VAPOR PRESSURE: Not applicable
VAPOR DENSITY: Not applicable
BOILING POINT: 212°C
MELTING POINT: Not applicable
SOLUBILITY IN WATER: % by wt. @ 25° C (77° F): Not applicable
EVAPORATION RATE: (Butyl Acetate=1): Not applicable
DENSITY: Not applicable
SPECIFIC GRAVITY: (H₂O=1): 1.98
COEFF. OIL/WATER: Not applicable
ODOR THRESHOLD: Not available
OXIDIZING PROPERTIES: Oxidizer

10. STABILITY AND REACTIVITY

Conditions to avoid:

Heat

Stability:

Stable (becomes unstable in presence of heat and contamination).

Polymerization:

Will not occur.

Hazardous decomposition products:

Oxygen that supports combustion and oxides of sulfur and nitrogen.

Incompatible materials:

Acids, alkalis, halides (fluorides, chlorides, bromides), combustible materials, heavy metals, oxidizable materials, reducing agents and organic compounds.

11. TOXICOLOGICAL INFORMATION

Eye effects:

Minimally irritating (rabbit) [FMC 187-0968]

Skin effects:

Non-irritating (rabbit); May be sensitizer to allergic persons. [FMC Study 187-0970]

Dermal LD 50:

>2000 mg/kg (rabbit) [FMC 191-1200]

Oral LD50:

495 mg/kg (female rat) [FMC 191-1201]

Inhalation LC50:

>2.95 mg/L (rat, 4 hr. maximum attainable concentration) [FMC 187-0969]

Target organs:

Sensory irritation-eyes nose, throat and lungs

Acute effects from over exposure:

Dust may be harmful and irritating. Ammonium persulfate has low dermal toxicity and is moderately toxic when ingested. Product is minimally irritating to the eyes and non-irritating to the skin.

Chronic effects from overexposure:

Sensitive persons may develop dermatitis and asthma [Respiration 38:144,1979].

Carcinogenicity:

IARC: Not listed

NTP: not listed

OSHA: Not listed

OTHER ACGIH: Not listed

12. ECOLOGICAL INFORMATION

Ecotoxicological information:

Bluegill sunfish, 96-hr LC50=103 mg/L [FMC 192-1246]

Rainbow trout, 96-hr LC50=76.3 mg/L [FMC 192-1247]

Daphnia, 48-hr LC50=120 mg/L [FMC 192-1248]

Grass shrimp, 96-hr LC50=391 mg/L [FMC 192-1249]

Chemical fate information:

Biodegradable does not apply to inorganic substances.

13. DISPOSAL CONSIDERATIONS

Disposal method:

Dispose as a hazardous waste in accordance with regulatory agencies.

14. TRANSPORT INFORMATION

U.S. DOT (Department of Transportation)

Proper Shipping Name: Ammonium Persulfate

Primary Hazard Class/Division: 5:1 (Oxidizer)

UN/NA Number: UN 1444

Placards: 5:1 (Oxidizer)

Labels: Oxidizer

Special Shipping Notes:

IMDG: Ammonium Persulfate

IATA : Ammonium Persulfate

Protect from physical damage. Do not store near acids or heat.

NFPA Rating:

Health: 1
Flammability: 0
Reactivity: 1
Special: Oxidizer

15. REGULATORY INFORMATION

United States

SARA TITLE III (Superfund Amendments and Reauthorization Act)
Section 311 Hazard Category (40 CFR 370): Fire Hazard, Immediate (acute) Health Hazard.

Section 312 Threshold Planning Quantity (40 CFR 370): 10000 lbs.

Section 313 Reportable Ingredients (40 CFR 372): Not listed

SARA TITLE III Section 302 Extremely Hazardous Substances (40 CFR 355): Not listed

CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
CERCLA Regulatory (40 CFR 302.4): Unlisted, RQ=100 lbs., Ignitability

TSCA (Toxic Substances Control Act)
TSCA Status (40 CFR 710): Listed

RCRA Status: Waste No. D001

Canada

WHMIS (Worker Hazardous Materials Information System):
Product Identification No: 1444
Hazardous Classification: class C (Oxidizer), Class D, Div. 2, Subdiv. B (Toxic)
Ingredients Disclosure List: Listed

16. OTHER INFORMATION

Revision Summary: Summary #3

Revision Date: January 2005