Ashland Chemical Co. Date Prepared: 01/06/98

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MSDS No: 308.0284935-002.006I

ACT-KI GOLD ETCHANT

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity

Product Name: ACT-KI GOLD ETCHANT General or Generic ID: BLEND

Company

Ashland Chemical Co. P.O. Box 2219 Columbus, OH 43216 614-790-3333 Emergency Telephone Number:

1-800-ASHLAND (1-800-274-5263)

24 hours everyday

Regulatory Information Number:

1-800-325-3751

2. COMPOSITION/INFORMATION ON INGREDIENTS

<pre>Ingredient(s)</pre>	CAS Number	% (by weight)
ORGANIC ACID	Trade Secret	60.0- 98.0
INORGANIC SALT	Trade Secret	2.0- 30.0

3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye

Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness.

Skin

Can cause permanent skin damage. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage.

Swallowing

Swallowing this material may be harmful or fatal. Symptoms may include severe stomach and intestinal irritation (nausea, vomiting, diarrhea), abdominal pain, and vomiting of blood. Swallowing this material may cause burns and destroy tissue in the mouth, throat, and digestive tract. Low blood pressure and shock may occur as a result of severe tissue injury.

Inhalation

Breathing of vapor or mist is possible. Breathing this material may be harmful or fatal. Symptoms may include severe irritation

and burns to the nose, throat, and respiratory tract.

Symptoms of Exposure
No data

Target Organ Effects
No data

Developmental Information
No data

Cancer Information
No data

Other Health Effects
No data

Primary Route(s) of Entry
Inhalation, Skin contact.

4. FIRST AID MEASURES

Eyes

If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Swallowing

Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Note to Physicians

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma-like conditions).

5. FIRE FIGHTING MEASURES

Flash Point

120.0 F (48.8 C) TCC

Explosive Limit

(for component) Lower 4.0 Upper 19.9 %

Autoignition Temperature

No data

Hazardous Products of Combustion

May form: acid vapors, carbon dioxide and carbon monoxide.

Fire and Explosion Hazards

Vapors are heavier than air and may travel along the ground or be moved by ventilation and ignited by heat, pilot lights, other flames and ignition sources at locations distant from material handling point.

Extinguishing Media

alcohol foam, water fog, carbon dioxide, dry chemical.

Fire Fighting Instructions

Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

NFPA Rating

Health - 3, Flammability - 2, Reactivity - 0

6. ACCIDENTAL RELEASE MEASURES

Small Spill

Cover with soda ash. Mix and scoop into a beaker of water.

Large Spill

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. All five-gallon pails and larger metal containers, including tank cars and tank trucks, should be grounded and/or bonded when material is transferred. Emergency eyewash fountains and safety showers should be available in the immediate vicinity of potential exposure.

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Eye Protection
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Chemical splash goggles and face shield (8" min.) in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (Consult your industrial hygienist.)

Skin Protection

Wear resistant gloves (consult your safety equipment supplier)., To prevent skin contact, wear impervious clothing and boots..

Respiratory Protections

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Engineering Controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Exposure Guidelines Component

ORGANIC ACID

OSHA VPEL 10.000 ppm - TWA ACGIH TLV 10.000 ppm - TWA

ACGIH TLV 15.000 ppm - STEL

INORGANIC SALT

No exposure limits established

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point

(for product) 187.0 F (86.1 C) @ 760 mmHg

Vapor Pressure

(for component) 17.500 mmHg @ 68.00 F

Specific Vapor Density

No data

Specific Gravity

1.108 @ 77.00 F

Liquid Density

9.430 lbs/gal @ 77.00 F

1.105 kg/l @ 25.00 C

Percent Volatiles

85.0 - 100.0 %

Evaporation Rate

SLOWER THAN ETHYL ETHER

Appearance

No data

State

LIQUID

Physical Form

HOMOGENEOUS SOLUTION

Color

DARK BROWN

Odor

ACIDIC

рН

2.6

10. STABILITY AND REACTIVITY

Hazardous Polymerization

Product will not undergo hazardous polymerization.

Hazardous Decomposition

May form: acid vapors, carbon dioxide and carbon monoxide.

Chemical Stability

Stable.

Incompatibility

Avoid contact with: strong alkalies, strong oxidizing agents, Acid reacts with most metals to release hydrogen gas which can form explosive mixtures with air..

11. TOXICOLOGICAL INFORMATION

No data

12. ECOLOGICAL INFORMATION

No data

13. DISPOSAL CONSIDERATION

Waste Management Information

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:

ACETIC ACID, GLACIAL, 8, UN2789, II

Container/Mode:

NOS Component:

None

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs) Component

5464 ACETIC ACID

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4(a)

None listed

CERCLA RQ - 40 CFR 302.4(b)

Materials without a "listed" RQ may be reportable as an "unlisted hazardous substance". See 40 CFR 302.5 (b).

SARA 302 Components - 40 CFR 355 Appendix A None

Section 311/312 Hazard Class - 40 CFR 370.2
 Immediate(X) Delayed() Fire(X) Reactive() Sudden
 Release of Pressure()

SARA 313 Components - 40 CFR 372.65 None

International Regulations

Inventory Status

Not determined

State and Local Regulations

California Proposition 65

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains the following substance(s) known to the state of California to cause reproductive harm.

ARSENIC

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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