1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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

Company                             Emergency Telephone Number:
Ashland Chemical Co.               1-800-ASHLAND (1-800-274-5263)
P.O. Box 2219                      24 hours everyday
Columbus, OH 43216
614-790-3333                       Regulatory Information Number:

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>CAS Number</th>
<th>% (by weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORGANIC ACID</td>
<td>Trade Secret</td>
<td>60.0-98.0</td>
</tr>
<tr>
<td>INORGANIC SALT</td>
<td>Trade Secret</td>
<td>2.0-30.0</td>
</tr>
</tbody>
</table>

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.

8. EXPOSURE CONTROLS/PERSO
Eye Protection
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
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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

pH
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:
55 GAL DRUM/TRUCK PACKAGE

NOS Component:
None

RQ (Reportable Quantity) - 49 CFR 172.101
Product Quantity (lbs) Component
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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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