1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	**EKC265™**
General Use:	Post-Etch Residue Remover
Product Description:	Aqueous Organic Blend
Revision and Date:	Revision P, June 11, 2007

MANUFACTURER
EKC Technology, Inc.
2520 Barrington Court
Hayward, CA 94545-1133
(510) 784-9105

EMERGENCY PHONE NUMBERS
(800) 424-9300
CHEMTREC
24 hours/day, 7 days/week

2. COMPOSITION / INFORMATION ON INGREDIENTS

	Wt.%	CAS Registry #
2-(2-Aminoethoxy) Ethanol	Proprietary	929-06-6
Hydroxylamine	Proprietary	7803-49-8
Catechol	Proprietary	120-80-9

	EXPOSURE LIMITS 8 hrs. TWA (ppm)		
	OSHA PEL	ACGIH TLV	DUPONT AEL
2-(2-Aminoethoxy) Ethanol	None	None	None
Hydroxylamine	None	None	0.05
Catechol	None	5 (Skin)	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Yellow-Orange to Reddish-Orange liquid with an amine odor. Causes burns. May cause allergic skin reaction.

POTENTIAL HEALTH EFFECTS

INHALATION

May cause respiratory tract irritation. Prolonged or repeated exposure may cause difficulty in breathing, headache, nausea, vomiting, drowsiness, cyanosis, and lung damage.

EYE CONTACT

Causes burns.

SKIN CONTACT

Causes burns. Prolonged or repeated exposure may cause allergic skin reaction in some people.

INGESTION

Swallowing this material causes burns to mouth, throat, and stomach.

TARGET ORGANS

Skin, eyes, liver, kidney, blood, stomach, lungs, and central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Overexposure may aggravate existing cardiovascular or respiratory conditions, blood disorders, or dermatitis.

CARCINOGENICITY

National Toxicology Program (NTP):	Not listed
IARC Monographs:	Contains catechol which is listed as (2B)
OSHA:	Not listed
ACGIH:	Contains catechol which is listed as (A3)

POTENTIAL ENVIRONMENTAL EFFECTS

None have been identified.

4. FIRST AID MEASURES

INHALATION

Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.

EYE CONTACT

Immediately flush eyes with water for at least 15 minutes. Have eyes examined and treated by a physician.

SKIN CONTACT

Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. If redness or irritation occurs, seek medical attention.

INGESTION

Do not induce vomiting. Seek immediate medical attention. Maintain an open airway. Administer artificial respiration if necessary. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN

Evacuation of stomach contents should be done by means least likely to cause aspiration, such as gastric lavage after endotracheal intubation.

5. FIRE FIGHTING MEASURES

Flashpoint and Method	>212°F (>100°C)/Seta Flash Closed Cup ASTM 3278
Flammable Limits in Air % by volume	Lower: Not available Upper: Not available
Autoignition Temperature	644-662°F (340-350°C)
Extinguishing Media	Water spray, foam, carbon dioxide, dry chemical

UNUSUAL FIRE AND EXPLOSION HAZARDS

Toxic vapors may be given off at high temperatures.

FIRE FIGHTING INSTRUCTIONS

Use water spray to cool containers and fire exposed surfaces. Shut off fuel to fire if possible to do so without hazard.

FIRE FIGHTING EQUIPMENT

Wear full protective clothing with self-contained positive pressure breathing apparatus. If there is potential for skin exposure to EKC265™, see Section 8 of this MSDS.

HAZARDOUS COMBUSTION PRODUCTS

Carbon monoxide, NOx, Ammonia

6. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES

Evacuate area and keep personnel upwind. Cut off any source of ignition and ventilate the spill area. Contain spill with absorbent material. Transfer absorbent and other contaminated materials to a UN approved HDPE covered and vented container for disposal. Consult with Federal, State, and local regulatory agencies to determine acceptable clean-up levels. Comply with Federal, State, and local regulations on reporting releases. **Wipes and absorbent materials that are used to clean up small spills must be saturated with water before disposal into HDPE drums. Not doing so may cause smoldering and presents a fire hazard. Solid materials contaminated with EKC265™ should be segregated from other wastes, especially flammable and combustible wastes.**

7. HANDLING AND STORAGE

STORAGE TEMPERATURE

Storage in a dry, well-ventilated area at 27° to 120°F (-3° to 49°C) is recommended. Storage at temperatures down to -20oC will not damage the product and is not expected to cause any safety concerns.

GENERAL

Keep in original vented containers.
Keep away from strong oxidizing agents, acids, and ketones.
Prevent skin and eye contact.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTION

RESPIRATORY PROTECTION

No respiratory protection is required when this material is handled under proper ventilation, such as a wet bench or fume hood. If proper ventilation is not available, use a NIOSH approved full-face respirator with canisters or cartridges specifically approved for ammonia. Whenever cartridges or canister respirators are used, ensure the frequent changing of the filter element. Use a supplied air respirator when in doubt of the atmospheric concentration. Consult 29 CFR 1910.134 regarding use of respirators.

PROTECTIVE CLOTHING

Take all precautions to prevent skin contact. Wear Nitrile, Neoprene or Latex clothing and gloves, and chemical resistant boots when there is a probability of liquid contact.

EYE / FACE PROTECTION

Wear chemical goggles or use chemical goggles under face shield when there is a probability of liquid contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure:	Not available	Freezing Point:	Not available
Vapor Density:	>1 (Air = 1)	Appearance:	Yellow-orange to Reddish-orange
Specific Gravity:	1.05-1.12	Boiling Range	230-430°F (110-221°C)
Evaporation Rate:	<1 (Butyl Acetate=1)	Odor:	Amine
Solubility in Water:	Complete	Physical State:	Liquid
pH:	11.5-12.5		

10. STABILITY AND REACTIVITY

GENERAL

This product is stable at normal temperatures and conditions of storage.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID

Iron and heavy metal salts, strong oxidizing agents, acids and ketones

HAZARDOUS DECOMPOSITION

Carbon monoxide, NOx, Ammonia

HAZARDOUS POLYMERIZATION

Will not normally occur.

11. TOXICOLOGICAL INFORMATION

DATA FOR EKC265™

INHALATION

LC_{50}, rat (4 hr): >1.74 mg/l, the highest attainable concentration.

EYE CONTACT

Vapors cause irritation, based on human experience.

DATA FOR EKC265™ (CONT.):

SKIN CONTACT

LD_{50}, rabbit: 1264 mg/kg, harmful, cyanosis was noted. Considered corrosive from *in vitro* assay results. Primary irritation index: 4.6/8.0, moderately irritating. Skin sensitizer in guinea pigs.

INGESTION

LD_{50}, rat: 576 mg/kg, harmful, cyanosis was noted.

GENOTOXICITY

Not mutagenic in bacterial cells in culture.

TARGET ORGANS

Skin, eyes, liver, kidneys, blood, stomach, lungs, respiratory tract, spleen, and central nervous system

DATA FOR 2-(2-AMINOETHOXY) ETHANOL, A COMPONENT OF EKC265™:

EYE CONTACT

FHSA score >80/110, severely irritating

TARGET ORGANS

Eyes and Skin

DATA FOR HYDROXYLAMINE, A COMPONENT OF EKC265™:

EYE CONTACT

Moderately irritating

SKIN CONTACT

Occupational exposure has been associated with dermatitis. Reported to be a skin sensitizer. Can cause the formation of methemoglobin and produce cyanosis.

GENOTOXICITY

Hydroxylamine and its salts have been tested in a number of short-term assays using cells in culture, insects, or plants. A mixture of positive and negative results has been found.

TARGET ORGANS

Skin, eyes, respiratory tract, blood, and spleen

DATA FOR HYDROXYLAMINE, A COMPONENT OF EKC265™ (CONT.):

CHRONIC TOXICITY

Drinking water study (rat, sulfate salt, 24 months):
LOAEL = 0.2-0.4 mg/kg, the lowest doses tested
Increased incidence of spleen tumors, hyperplasia in the spleen, increased spleen weights, hemolytic anemia, and hemosiderin storage in tissues noted.

DATA FOR CATECHOL, A COMPONENT OF EKC265™:

INHALATION

Occupational exposure has been associated with chronic inflammation of the upper respiratory tract.

EYE CONTACT

Corrosive

SKIN CONTACT

Irritation and sensitization have been reported in humans.

GENOTOXICITY

Tests for point mutations in isolated cells that involve direct effects on DNA have been negative when performed by standard EPA acceptable protocols. Some test for chromosomal effects have been positive. Studies that looked for direct effects on DNA in the rat stomach were negative. The results suggest that catechol does not affect DNA directly.

TARGET ORGANS

Liver, kidneys, blood, stomach, lungs, and central nervous system

CHRONIC TOXICITY

Dietary study (rat, 104 weeks):
LOAEL = 1600 ppm in diet (~80 mg/kg)
Decreased body weights, increased relative liver weights, stomach hyperplasia, and benign stomach tumors noted; malignant stomach tumors and stomach ulcers also found at 8000 ppm in diet (~400 mg/kg). Evidence suggests that doses too low to cause stomach toxicity will not produce tumors.

Dietary study (mouse, 96 weeks):
LOAEL = 8000 ppm in diet (~1200 mg/kg), the only dose tested
Decreased body weights, increased relative liver weights, stomach hyperplasia, and benign stomach tumors noted.

12. ECOLOGICAL INFORMATION

No data are available for EKC265™. Data for the components are summarized below.

DATA FOR 2-(2-AMINOETHOXY) ETHANOL, A COMPONENT OF EKC265™:

FATE

Bioconcentration in aquatic organisms, adsorption to suspended solids, and evaporation not expected to be important processes in water. Expected to biodegrade rapidly, with a half-life for ultimate biodegradation of weeks. Predicted to leach readily in soil, with negligible adsorption. In air, removal expected rapidly by reaction with hydroxyl radicals, with a half-life of less than 2 hr.

AQUATIC TOXICITY

Not expected to be harmful to aquatic organisms.
48 hr EC/LC_{50} Fathead minnow: 1-10 mg/L, toxic
72 hr EC/LC_{50} Algae: 0.72 mg/L, very toxic.

DATA FOR HYDROXYLAMINE, A COMPONENT OF EKC265™:

FATE

Rapidly oxidized to nitrates and broken down to nitrous oxide and ammonia in water. Nitrites formed by many bacteria in soil. Converted to oximes by reaction with carbonyl groups.

AQUATIC TOXICITY

48 hr EC/LC_{50} Daphnia magna: 1.62 mg/L, toxic
48 hr EC/LC_{50} Fathead minnow: 1-10 mg/L, toxic
72 hr EC/LC_{50} Algae: 0.72 mg/L, very toxic

DATA FOR CATECHOL, A COMPONENT OF EKC265™:

FATE

Biodegradation demonstrated under anaerobic conditions. Expected to undergo direct and indirect photolysis. Not expected to adsorb to sediments, evaporate, or bioconcentrate. Should be partially ionized in water and moist soils. Expected to be highly mobile in soils. Not expected to evaporate or hydrolyze in soils. Will exist mainly as vapor in air, where photodegradation is expected with a half-life of 0.6 days.

AQUATIC TOXICITY

96 hr LC_{50} Fathead minnow: 3.5 mg/L, toxic,
96 hr LC_{50} Sand shrimp: >44 mg/L, no more than harmful.
96 hr LC_{50}Rainbow trout: 8.9 mg/L, toxic
When green algae were exposed to catechol for 1 to 14 days, growth was inhibited at concentrations of 20 mg/L.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS

Consult 40 CFR, Parts 261 and 268, State, and local regulations for guidance on disposal of this product. Incineration at a facility with appropriate permits or authorizations is the recommended method of disposal. Spent EKC265™ should be segregated from ketones and gamma butyrolactone. **Wipes and absorbent materials that are used to clean up small spills must be saturated with water before disposal into HDPE drums. Not doing so may cause smoldering and presents a fire hazard. Solid materials contaminated with EKC265™ should be segregated from other wastes, especially flammable and combustible wastes. For transportation of spent EKC265™ use only vented drums of HDPE or plastic lined steel drums.**

CONTAINER DISPOSAL

Empty containers retain product residue. Observe all hazard precautions. Keep away from heat, sparks, and flames, Do not distribute, make available, or reuse empty containers except for storage and shipment of original product. Remove all hazardous product residue, and puncture or otherwise destroy empty containers before disposal. Consult 40 CFR, Parts 261 and 268 for guidance on disposal.

14. TRANSPORT INFORMATION

DOT/IMO/ICAO/IATA

Proper shipping name	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (CONTAINS 2-(2-AMINOETHOXY) ETHANOL)
Hazard Class	8
Identification number	UN 3267
Packing group	II
Labels required	Corrosive
IMDG page number	Not available

EKC265™ cannot ship via air due to the vented cap.

15. REGULATORY INFORMATION

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Components of this product are listed on the TSCA Inventory.

PROPOSITION 65

WARNING. This product contains a chemical known to the State of California to cause cancer.

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 Hazard Categories	Acute, chronic
313	This product contains catechol at an upperbound concentration of 5% which is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION AND LIABILITY ACT)

Not reportable

We recommend that you contact local authorities to determine if there may be other local reporting requirements.

16. OTHER INFORMATION

Because the health effects from exposure to EKC265™ have not been fully evaluated, exposure should be kept to the lowest level possible. This material is for industrial use and should only be used under the supervision of a technically qualified individual.

LABEL INFORMATION

NFPA CODES

Health	3
Fire	1
Reactivity	0
Specific Hazard	Corrosive

REVISION SUMMARY

Rev. P	Revision of label

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