1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	**EKC830™**
General Use:	Posistrip® Positive Photoresist Remover
Product Description:	Organic Solvent Blend
Revision and Date:	Revision M, April 26, 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 #
N-Methylpyrrolidone	Proprietary	872-50-4
2-(2-Aminoethoxy)Ethanol	Proprietary	929-06-6

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

EXPOSURE LIMITS 8 hrs. TWA (ppm)

	OSHA PEL	ACGIH TLV	DUPONT AEL
N-Methylpyrrolidone	None	None	5 ppm
2-(2-Aminoethoxy)Ethanol	None	None	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Light straw colored 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, and drowsiness.

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. Aspiration may occur during swallowing or vomiting, resulting in lung damage.

REPRODUCTIVE TOXICITY

Prolonged or repeated exposure may cause reproductive disorders and birth defects based on tests with laboratory animals.

TARGET ORGANS

Lungs, blood, lymph nodes, testes, thymus, kidneys, skin, and central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Overexposure may aggravate existing respiratory conditions and dermatitis.

CARCINOGENICITY

National Toxicology Program (NTP):	Not listed
IARC Monographs:	Not listed
OSHA:	Not listed
ACGIH:	Not listed

POTENTIAL ENVIRONMENTAL EFFECTS

No adverse effects have been noted.

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

Seek immediate medical attention. Maintain an open airway. Administer artificial respiration if necessary. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flashpoint and Method	212°F (100°C) Seta Flash Closed Cup (SFCC)
Flammable Limits in Air % by volume	Lower: 2.0 Upper: 12.0
Autoignition Temperature	Not available
Extinguishing Media	Water, foam, carbon dioxide, dry chemical

UNUSUAL FIRE AND EXPLOSION HAZARDS

None have been identified.

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 EKC830™ see Section 8 of this MSDS.

HAZARDOUS COMBUSTION PRODUCTS

Carbon monoxide, nitrogen oxides

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 covered 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.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE

Storage in a dry, well-ventilated area 40° to 90°F (5° to 32°C) is recommended.

GENERAL

Keep in original tightly closed containers.
Keep away from strong oxidizing agents, anhydrides, isocyanates and organometallics.
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 organic vapors. 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 neoprene clothing, gloves, and chemical resistant boots when there is a probability of liquid contact.

EYE/FACE PROTECTION

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure:	15 mm Hg at 77°F (25°C)	Freezing Point:	Not available
Vapor Density:	>1 (Air = 1)	Appearance:	Light straw color
Specific Gravity:	1.00-1.10	Boiling Range:	396-430°F (202-221°C)
Evaporation Rate:	<1 (Butyl Acetate = 1)	Odor:	Amine
Solubility in Water:	Complete	Physical State:	Liquid
pH:	Not applicable		

10. STABILITY AND REACTIVITY

GENERAL

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

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID

Strong oxidizing agents, acids

HAZARDOUS DECOMPOSITION

Carbon monoxide, nitrogen oxides

HAZARDOUS POLYMERIZATION

Will not normally occur.

11. TOXICOLOGICAL INFORMATION

DATA FOR EKC830™

INHALATION

LC_{50}, rat (4 hr): >2.65 mg/l
Signs of respiratory irritation were found.

EYE CONTACT

Corrosive

SKIN CONTACT

LD_{50}, rabbit: >2000 mg/kg, not harmful.
Corrosive. Not a sensitizer in guinea pigs.

INGESTION

LD_{50}, rat: 3280 mg/kg, not harmful.

GENOTOXICITY

Not mutagenic in bacterial cells in culture.

TARGET ORGANS

Lungs, blood, lymph nodes, testes, thymus, kidneys, and central nervous system

DATA FOR N-METHYLPYRROLIDONE, A COMPONENT OF EKC830™:

GENOTOXICITY

Caused chromosome damage in yeast cells.

DEVELOPMENTAL TOXICITY

Gavage study (rabbit, days 6-18 of gestation):
NOAEL for maternal toxicity = 55 mg/kg
LOAEL for maternal toxicity = 175 mg/kg
NOAEL for developmental toxicity = 175 mg/kg
LOAEL for developmental toxicity = 540 mg/kg
Malformations and resorptions noted; no selective effect on fetus.

Dermal study (rat, days 6-15 of gestation):
NOAEL for maternal toxicity = 237 mg/kg
LOAEL for maternal toxicity = 750 mg/kg
NOAEL for developmental toxicity = 237 mg/kg
LOAEL for developmental toxicity – 750 mg/kg
Embryotoxicity and malformations noted, no selective effect on fetus.

Inhalation study (rat, 6 hr/day, days 6-15 of gestation):
NOAEL for maternal and developmental toxicity = 0.36 mg/L, the highest level tested.

Inhalation study (rat, 6 hr/day, days 0-20 of gestation):
NOAEL for maternal toxicity = 116 ppm (≅0.47 mg/l), the only level tested.
LOAEL for developmental toxicity = 116 ppm (≅0.47 mg/l), the only level testedSlight decrease in fetal body weight noted.

Inhalation study (rat, 6 hr/day, days 4-20 of gestation):
NOAEL for maternal toxicity = 165 ppm (≅0.67 mg/l), the only level tested.
LOAEL for developmental toxicity = 165 ppm (≅0.67 mg/l), the only level testedIncreased preimplantation loss, delayed ossification, and decreased fetal body weight gain noted.

Gavage study (rat, days 6-20 of gestation):
NOAEL for maternal toxicity = 250 mg/kg
LOAEL for maternal toxicity = 500 mg/kg
NOAEL for developmental toxicity = 125 mg/kg
LOAEL for developmental toxicity = 250 mg/kg
Decreased maternal and fetal weight gain and increased malformations, resorptions, and delayed ossification noted.

REPRODUCTION

Dietary study (rat):
NOAEL – 160 mg/kg
LOAEL – 500 mg/kg
Decreased maternal weight gain, fertility and fecundity, and embryo- and fetotoxicity noted.

DATA FOR N-METHYLPYRROLIDONE, A COMPONENT OF EKC830™ (CONT.):

Inhalation study (rat, two generation, 6 hr/day, 7 days/week):
NOAEL = 51 ppm (≅0.21 mg/l)
LOAEL = 116 ppm (≅0.47 mg/l)
Slight decrease in offspring body weight from birth to 21 days noted

SUBCHRONIC TOXICITY

Dietary study (13 weeks, dog):
NOAEL -= 250 mg/kg (highest dose tested)

Inhalation study (6 hr/day for 90 days plus 4 week recovery, rat):
NOAEL = 1 mg/L
LOAEL = 3 mg/L
Rrespiratory irritation, decreased weight gain, and effects on testes noted.

Inhalation study (6 hr/day for 4 weeks plus 2 week recovery, rat):
NOAEL = 0.5 mg/LL
LOAEL = 1.0 mg/L
Damage to lungs, blood cells, lymph nodes, and thymus noted.

Dietary study (rat, 28 days):
NOAEL ≅ 429 mg/kg (males), ≅1548 mg/kg (females)
LOAEL ≅ 1234 mg/kg (males), ≅2268 mg/kg (females)
Decreased body weight gains and food consumption and alterations in lipid, protein, and carbohydrate metabolism noted.

Dietary study (mouse, 28 days):
NOAEL ≅ 720 mg/kg (males), ≅920 mg/kg (females)
LOAEL ≅ 2130 mg/kg (males), ≅2970 mg/kg (females)
Kidney damage noted.

Dietary study (rat, 90 days):
NOAEL ≅ 230 mg/kg
LOAEL ≅ 592 mg/kg
Decreased body weight gains, liver changes, and neurobehavioral effects noted.

Dietary study (mouse, 90 days):
NOAEL ≅ 150 mg/kg
LOAEL ≅ 375 mg/kg
Decreased body weight gains, liver changes, and neurobehavioral effects noted.

CHRONIC TOXICITY

Inhalation study (6 hr/day for 2 years, rat):
NOAEL – 0.4 mg/L (highest dose tested).

Dietary study (rat, 2 years):
NOAEL ≅ 250 mg/kg
LOAEL ≅ 750 mg/kg
Decreased weight gain and food consumption in both sexes and decreased survival and increased nephropathy in males noted.

DATA FOR N-METHYLPYRROLIDONE, A COMPONENT OF EKC830™ (CONT.):

Dietary study (mouse, 18 months):
NOAEL ≅ 284 mg/kg
LOAEL ≅ 1244mg/kg
Increased liver tumors and other liver alterations in both sexes; potentially reversible effects on liver weight and size of liver cells at the NOAEL noted; no effects at about 102 mg/kg.

DATA FOR 2-(2-AMINOETHOXY)ETHANOL A COMPONENT OF EKC830™ (CONT.):

SKIN CONTACT

Reported to cause allergic skin reaction in workers.

ITARGET ORGANS

Skin

12. ECOLOGICAL INFORMATION

No data are available for EKC830™. Data for the components are summarized below.

DATA FOR N-METHYLPYRROLIDONE, A COMPONENT OF EKC830™

FATE

Potentially biodegradable under aerobic conditions. Expected to be highly mobile in soil. It may slowly evaporate from dry soil, but is not expected to significantly evaporate from moist soil or from water. It is not expected to significantly bioconcentrate in fish and aquatic organisms.In air, it has been found to react with hydroxyl and nitrate radicals; the trophospheric lifetime is a few hours.

AQUATIC TOXICITY

48 hr EC_{50} Golden orfe: >4600<10,000 mg/L, not harmful.
24 hr EC_{50} Daphnia magna: >1000 mg/L, not harmful.
72 hr EC_{50} Algae: >500, not harmful.
96 hr LC_{50} Rainbow trout: >500 mg/L, not harmful.

DATA FOR 2-(2-AMINOETHOXY)ETHANOL, A COMPONENT OF EKC830™

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.

DATA FOR 2-(2-AMINOETHOXY)ETHANOL A COMPONENT OF EKC830™ (CONT.):

AQUATIC TOXICITY

Not expected to be harmful to aquatic organisms.

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.

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 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	UN3267
Packing group	II
Labels required	Corrosive

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 birth defects or other reproductive harm.

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 Hazard Categories	Acute, chronic
313	This product is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of CFR 372.

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION AND LIABILITY ACT)

Not reportable

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

16. OTHER INFORMATION

Because the health effects from exposure to EKC830™ 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	2
Fire	1
Reactivity	0
Specific Hazard	None

REVISION SUMMARY

Rev. M	Revision of Label
Prepared by:	Steven C. Dawson, CIH Manager, Industrial Hygiene & Health

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