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*                               EMERGENCY OVERVIEW                               *
*                               *                                               *
* WARNING! Color: Clear to pale straw; Form: Liquid; Odor: *
* Odorless; May cause respiratory tract irritation; May cause *
* allergic respiratory reaction; Causes skin irritation; May *
* cause allergic skin reaction; Causes eye irritation; May be *
* harmful if swallowed; Irritating gases/fumes may be given *
* off during burning or thermal decomposition. *
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POTENTIAL HEALTH EFFECTS:

ROUTES OF ENTRY.....: Eye and skin contact, inhalation of vapors or mists, accidental ingestion.

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE INHALATION.....: The sodium sulfite, diethanolamine, hydroquinone and boric acid in this product are expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose. Sodium sulfite may cause an allergic reaction in some asthmatics and sulfite sensitive individuals. Possible symptoms include bronchoconstriction, sweating, flushing, hives, rapid heart rate, decreased blood pressure, and anaphylaxis. Inhalation of ethylene glycol vapors is unlikely due to its low vapor pressure. However, if misted or handled at elevated temperatures, high concentrations of ethylene glycol can produce drowsiness, headache, dizziness, and nausea. Inhalation of potassium hydroxide vapors can cause respiratory tract irritation with symptoms of coughing, choking, runny nose, and possible burns of the mucous membranes.

CHRONIC INHALATION.....: Persons who have been previously sensitized to sulfites should take precautions to prevent the inhalation of sodium sulfite. Prolonged exposure to high concentrations of potassium hydroxide may cause discomfort and ulceration of the nasal passages. Prolonged inhalation of potassium bromide may cause skin eruptions.

ACUTE SKIN CONTACT.....: Sodium sulfite, diethanolamine, boric acid, and hydroquinone can be irritating to the skin with symptoms of reddening, itching, and swelling. Hydroquinone may cause skin sensitization with symptoms of rash, itching, hives, and swelling. Contact with potassium hydroxide can be corrosive to the skin with symptoms of itching, reddening, swelling, and burning.

CHRONIC SKIN CONTACT.....: Sensitization with dermatitis or hives may occur. Repeated or prolonged skin contact with boric acid may result in dermatitis.

ACUTE EYE CONTACT.....: Sodium sulfite, diethanolamine, boric acid, 1-Phenyl-3-pyrazolidone and hydroquinone can be irritating to the eyes with symptoms of tearing, stinging, reddening, and swelling. Contact with potassium hydroxide can be corrosive to the eyes resulting in burning, itching, reddening, swelling of the eye and surrounding tissue and clouding of the cornea.

CHRONIC EYE CONTACT.....: Repeated exposure to hydroquinone may cause intolerance of the eyes to light. In addition, repeated overexposure to hydroquinone may cause pigment deposition, which can extend into the cornea with continued exposure to high concentrations. This pigment deposition does not impair vision.

ACUTE INGESTION.....: Ingestion of this product may cause gastrointestinal irritation. Hydroquinone may be harmful if swallowed with symptoms including nausea, vomiting, drowsiness, dizziness, disorientation, bluish skin color, and stomach pain. If ingested, boric acid may cause damage to the gastrointestinal tract with pain, nausea, vomiting, diarrhea, headache, confusion and drowsiness. Ingestion may be fatal due to central nervous system depression, circulatory failure or renal failure. Liver and/or kidney damage may result from ingestion of boric acid. Ingestion of potassium hydroxide solutions may cause burning pain in the mouth, throat, esophagus and abdomen. Ethylene glycol is considerably more toxic to humans than to animal species. The lethal dose for man is approximately 1.4 ml/kg. Ingestion of ethylene glycol may result in abdominal pain and central nervous system stimulation followed by central nervous system depression. 1-Phenyl-3-pyrazolidone is expected to be harmful if swallowed.

CHRONIC INGESTION.....: Kidney damage resulted when ethylene glycol was fed in the diet of rats for two years.

OTHER EFFECTS OF EXPOSURE.....: See Section 11.

REPRODUCTIVE EFFECTS.....: Boric Acid: Long-term high dose animal ingestion studies have shown reproductive and developmental effects. 1A human study of occupational exposure to borate dust showed no adverse effect to reproduction.

CARCINOGENICITY.....: The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: Persons with preexisting eye, skin, or kidney conditions or impaired pulmonary function may be more susceptible to the effects of this product.

**4. FIRST AID MEASURES:**

FIRST AID FOR EYES.....: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

FIRST AID FOR SKIN.....: Flush affected areas promptly with water and soap for 15 minutes. Remove contaminated clothing. In case of continued irritation consult physician.

FIRST AID FOR INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

FIRST AID FOR INGESTION.: Drink 1-2 glasses of water. Never give anything by mouth to an unconscious person. Seek medical attention. Take this MSDS to physician.

**5. FIRE FIGHTING MEASURES:**

FLASH POINT.....: Noncombustible

EXTINGUISHING MEDIA.....: Material is not combustible. Use extinguishing media suitable for other combustible materials in the area.

SPECIAL FIRE FIGHTING PROCEDURES: Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus.

UNUSUAL FIRE / EXPLOSION HAZARDS: When heated to decomposition emission of toxic fumes of SO<sub>2</sub> is possible.

**6. ACCIDENTAL RELEASE MEASURES:**

SPILL OR LEAK PROCEDURES.....: Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Dike Spill. Prevent liquid from entering sewers, waterways or low areas. Soak up with sawdust, sand, oil dry or other absorbent material. Spill may be neutralized with powdered Citric Acid. For disposal see section 13.

**7. HANDLING AND STORAGE:**

STORAGE TEMPERATURE(MIN/MAX): Store between 40 F (4.4 C) and 80 F (26 C).

Preferred storage is at 68 F (20 C).

SHELF LIFE.....: N.A.

SPECIAL SENSITIVITY.....: Keep from freezing.

HANDLING/STORAGE PRECAUTIONS: Avoid eye and skin contact, and store in well-ventilated area. Keep container tightly closed. Do not store with incompatible materials. Do not store or consume food, drink or tobacco in area where they may become contaminated with this material. For incompatibles see section 10.

OTHER NOTES.....: Keep out of the reach of children.

**8. PERSONAL PROTECTION:**

PROTECTIVE CLOTHING REQUIREMENTS...: Splash protection required for eyes, e.g., eye glasses with side shields or goggles. For skin protection use chemical resistant gloves and aprons, e.g. made of neoprene, rubber or vinyl.

VENTILATION REQUIREMENTS.....: Use sufficient general room ventilation and/or local exhaust to maintain airborne levels of vapors below applicable exposure limits (see Section 2).

RESPIRATOR REQUIREMENTS.....: Under normal conditions of use, respirator protection is not required. If respirators are used, institute a program in accordance with OSHA standard 29CFR1010.134.

ADDITIONAL PROTECTIVE MEASURES.....: Emergency showers and eye wash stations should be made available. Educate and train employees in the safe use and handling of this product.

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

PHYSICAL FORM.....: Liquid  
COLOR.....: Clear to pale straw  
ODOR.....: Odorless  
pH .....: 10.5  
BOILING POINT.....: Greater than 212 F (100 C)  
MELTING/FREEZING POINT....: Less than 32 F (0 C)  
SOLUBILITY IN WATER .....: Soluble  
SPECIFIC GRAVITY .....: 1.24  
BULK DENSITY.....: Not Applicable  
VAPOR PRESSURE .....: Not Established

**10. STABILITY AND REACTIVITY:**

STABILITY.....: This is a stable material.  
HAZARDOUS POLYMERIZATION...: Will not occur.  
INCOMPATIBILITIES.....: Strong Acids, oxidizers  
INSTABILITY CONDITIONS.....: None known.  
DECOMPOSITION PRODUCTS.....: In case of fire, oxides of sulfur, CO<sub>2</sub>, carbon monoxide and other potentially toxic fumes.

**11. TOXICOLOGICAL INFORMATION:**

TOXICITY DATA FOR: Hydroquinone

ACUTE TOXICITY

ORAL LD50.....: 320 mg/kg (Rat) (1)  
SKIN EFFECTS.....: 2% skin - mild (Human); 5% skin - severe (Human) (1)  
OTHER ACUTE EFFECTS: Oral-Human LDLO: 29 mg/kg (1)

CHRONIC TOXICITY.....: Adverse kidney effects have been observed primarily in one strain of male rat (F-344) following chronic administration of oral doses. Nephropathy did not occur in two other strains of rats, mice, or dogs. (2)

CARCINOGENICITY.....: Formation of benign kidney tumors occurred only after nephropathy developed and only in one strain of male rat. Additional effects have been reported. Although an increase in leukemia was reported in the female F-344 rat, this result was not reproduced in a subsequent study. There was no evidence of cancer in male mice following chronic oral administration of hydroquinone. Increases in primarily benign tumors were noted in female mice, although this finding was not reproduced in a subsequent study. No tumors were reported in mice following long-term dermal application of hydroquinone. (2)

MUTAGENICITY.....: Studies using the Ames' test were generally negative. There is some evidence for mutagenicity from studies in animals, in isolated cells taken from animals and plants, and in other microorganisms. (2)

DEVELOPMENTAL TOXICITY: Hydroquinone has not caused birth defects when administered orally at dose levels not causing systemic toxicity in the mother. (2)

REPRODUCTION.....: Hydroquinone has not caused reproductive effects in male or female animals when administered orally at dose levels not causing systemic toxicity in the mother. (2)

1 Occupational Health Services Material Safety Data Sheet

2 Hydroquinone Health, Safety, and Environmental Information, Eastman Chemical Company

TOXICITY DATA FOR: Ethylene glycol

ACUTE TOXICITY

ORAL LD50.....: 4700 mg/kg (rat)

TOXICITY DATA FOR: Potassium hydroxide

ACUTE TOXICITY

ORAL LD50.....: 365 mg/kg (rat)

TOXICITY DATA FOR: 1-Phenyl-3-pyrazolidone

ACUTE TOXICITY

ORAL LD50.....: 200 mg/kg (rat)

**12. ECOLOGICAL INFORMATION:**

ECOLOGY DATA FOR: Ethylene glycol

FISH TOXICITY.....: LC50: 5000 mg/l (24 h) Leuciscus idus

INVERTEBRATE TOXICITY.....: LC50: Greater than 10000 mg/l (Daphnia)

**13. DISPOSAL CONSIDERATIONS**

WASTE DISPOSAL METHOD.....: Recover nonusable free liquid and/or contaminated water, and dispose of in an approved and permitted treatment system. Remove nonusable solid material and/or contaminated soil, for disposal in an approved and permitted landfill. Discharge to sewer may require approval of permitting authority and may require pretreatment.

**14. TRANSPORTATION INFORMATION:**

TECHNICAL SHIPPING NAME.....: Not Applicable

PRODUCT LABEL.....: Cinerex LD

DOT (DOMESTIC SURFACE)

HAZARD CLASS OR DIVISION .....: Non-Regulated

IMO / IMDG CODE (OCEAN)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA (AIR)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

**15. REGULATORY INFORMATION:**

OSHA STATUS.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS.....: On TSCA Inventory

CERCLA REPORTABLE QUANTITY..: Hydroquinone (100 lbs.); Ethylene glycol (5000 lbs.); Potassium hydroxide (1000 lbs.)

SARA TITLE III:

SECTION 302 EXTREMELY

HAZARDOUS SUBSTANCES...: Hydroquinone (CAS# 123-31-9) - 1-3%

SECTION 311/312

HAZARD CATEGORIES.....: Immediate Health Hazard; Delayed Health Hazard

SECTION 313

TOXIC CHEMICALS.....: Hydroquinone (CAS# 123-31-9) - 1-3%;

Ethylene glycol (CAS# 107-21-1) - 15-20%

RCRA STATUS.....: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Water		
7732-18-5	40-50 %	PA3, NJ4
Sodium Sulfite		
7757-83-7	10-15 %	PA3, NJ4
Boric Acid		
10043-35-3	1-3 %	PA3, NJ4
Ethylene glycol		
107-21-1	15-20 %	PA1, PA4, MA, NJ1, NJ2
Hydroquinone		
123-31-9	1-3 %	PA1, PA4, MA, NJ1, NJ3
Diethanolamine		
111-42-2	10-15 %	PA1, PA4, MA, NJ1, NJ2
Potassium Hydroxide		
1310-58-3	5-10 %	PA1, PA4, MA, NJ1, NJ3
1-Phenyl-3-pyrazolidone		
Potassium bromide		
7758-02-3	1-3 %	PA3, NJ4
Sodium Gluconate		
527-07-1	0-2 %	PA3, NJ4

MA = Massachusetts Hazardous Substance List  
 NJ1 = New Jersey Hazardous Substance List  
 NJ2 = New Jersey Environmental Hazardous Substance List  
 NJ3 = New Jersey Special Health Hazardous Substance List  
 NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%  
 PA1 = Pennsylvania Hazardous Substance List  
 PA3 = Pennsylvania Non-hazardous present at 3% or greater.  
 PA4 = Pennsylvania Environmental Hazardous Substance List.

**16. OTHER INFORMATION:**

HMIS RATINGS:           Health   Flammability   Reactivity   Personal Prot  
                           2                   0                   0                   B  
 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe  
 B=Safety Glasses, Gloves

AGFA's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by AGFA as a customer service.

REASON FOR ISSUE.....: Reviewed, Harmonized  
 PREPARED BY.....: R. Ruppel-Kerr  
 APPROVED BY.....: M. Patrick  
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 MSDS NUMBER.....: 40633

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