

Chromalox[®]



MATERIAL SAFETY DATA SHEET

SERVICE REFERENCE

DIVISION 4	SECTION CXH
SALES REFERENCE (Supersedes PF461-1)	PF461-2
161-302441-001	
DATE	APRIL, 2006

DATE	
MANUFACTURER'S NAME CHROMALOX, INC.	EMERGENCY TELEPHONE NO. 1-800-UCC-HELP
ADDRESS 103 GAMMA DRIVE, PITTSBURGH, PA 15238	

Chromalox urges each customer or recipient of this MSDS to study it carefully to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate to the use and understand the data contained in this MSDS.

To promote safe handling, each customer or recipient should: (1) notify its employees, agents, contractors and others whom it knows or believes will use this material of the information in this MSDS and any other information regarding hazards or safety; (2) furnish this same information to each of its customers for the product; and (3) request its customers to notify their employees, customers, and other users of the product of this information.

I. IDENTIFICATION

PRODUCT NAME: Chromakool EG Solution
CHEMICAL NAME: Aqueous Inhibited Ethylene Glycol Solution
CHEMICAL FAMILY: Glycol
FORMULA: Not Applicable
MOLECULAR WEIGHT: Not Applicable
SYNONYMS: PM 225
CAS #: Not Applicable CAS NAME: Not Applicable (mixture)

II. PHYSICAL DATA (Determined on typical material)

BOILING POINT, 760 mm Hg: 110.23°C (230.41°F)	
FREEZING POINT: -44°C (-48°F)	
SPECIFIC GRAVITY (H₂O = 1): 1.08238 at 20/20 C	VAPOR PRESSURE AT 20°C: 11.247 mm Hg
VAPOR DENSITY (air = 1): 1.00	SOLUBILITY IN WATER by wt: 100%
EVAPORATION RATE (Butyl Acetate = 1): 0.69	
APPEARANCE AND ODOR: Translucent green liquid, mild odor.	
PERCENT VOLATILES (by volume): 97.396 by weight	

III. INGREDIENTS

MATERIAL	%	TLV (Units)	HAZARD
Ethylene Glycol (CAS #107-21-1)	49-56	50ppm C, OSHA & ACGIH	See Section V
Water (CAS #7732-18-5)	42-48	None established	See Section V
Dipotassium Hydrogen Phosphate (CAS #7758-11-4)	2-3	None established	See Section V

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method(s)):	None by Pensky-Martens Closed Cup or Cleveland Open Cup
FLAMMABLE LIMITS IN AIR, % by volume:	LOWER: Not determined UPPER: Not determined
EXTINGUISHING MEDIA:	Non-flammable (aqueous solution): After water evaporates, remaining material will burn. Use alcohol-type or all-purpose-type foams, applied by manufacturers' recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.
SPECIAL FIRE FIGHTING PROCEDURES:	Use self-contained breathing apparatus and protective clothing.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	During a fire, ammonia and nitrogen-containing compounds may be produced.

V. HEALTH HAZARD DATA

EXPOSURE LIMIT: See Section III.

EFFECTS OF SINGLE OVEREXPOSURE

SWALLOWING: May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, lumbar pain, oliguria, uremia, and central nervous system effects, including irregular eye movements, convulsions and coma. Cardiac failure and pulmonary edema may develop. Severe kidney damage follows the swallowing of large volumes of ethylene glycol. May be fatal. A few reports have been published describing the development of weakness of the facial muscles, diminished hearing, and difficulty with swallowing, during the late stages of severe poisoning.

SKIN ABSORPTION: No evidence of adverse effects for available information.

INHALATION: May cause irritation of the nose and throat with headache, particularly from mists. High vapor concentrations caused, for example, by heating the material in an enclosed and poorly ventilated workplace, may produce nausea, vomiting, headache, dizziness and irregular eye movements.

SKIN CONTACT: No evidence of adverse effects from available information.

EYE CONTACT: Liquid, vapor, and mist may cause discomfort in the eye with persistent conjunctivitis, seen as slight excess redness of conjunctiva. Serious corneal injury is not anticipated.

EFFECTS OF REPEATED OVEREXPOSURE:

Inhalation of mist may produce signs of central nervous system involvement, particularly dizziness and nystagmus.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

May aggravate existing kidney disease.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:

Ethylene Glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. The no-effect dose for developmental toxicity for ethylene glycol given by gavage over the period of organogenesis has been shown to be 150 mg/kg/day for the mouse and 500 mg/kg/day for the rat. Also in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations 150, 1000 and 2500 mg/m³ for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentration, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1000 and 2500 mg/m³) and developmental toxicity with minimal evidence of teratogenicity (2500 mg/m³). The no-effects concentration (based on maternal toxicity) was 500 mg/m³. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen; there is currently no available information to suggest that ethylene glycol has caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity; exposure to high aerosol concentration is only minimally effective in producing developmental toxicity; the major route for producing developmental toxicity is perorally.

Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence, or a different pattern of tumors compared with untreated controls. The absence of a carcinogenic potential for ethylene glycol has been supported by numerous in vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

OTHER EFFECTS OF OVEREXPOSURE: Repeated skin contact with Ethylene Glycol may, in a very small proportion of cases, cause sensitization with the development of allergic contact dermatitis. The incidence is significantly less than 1% with undiluted Ethylene Glycol.

EMERGENCY AND FIRST AID PROCEDURES:

SWALLOWING: If conscious, give two glasses of water and induce vomiting. Call a physician immediately. If medical advice is delayed, and the person has swallowed moderate volumes of ethylene glycol (a few ounces), then give three to four ounces of hard liquor such as whiskey.

SKIN: Remove contaminated clothing and flush skin with water.

INHALATION: Remove to fresh air. Call a physician if symptoms persist.

EYES: Immediately flush with water, and continue washing the eyes for several minutes.

NOTES TO PHYSICIAN: The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. Ethanol is antidotal and its early administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. Ethanol should be given intravenously, as a 5% solution in sodium bicarbonate, at a rate of about 10 ml ethanol per hour. A desired therapeutic level of ethanol in blood is 100 mg/dl. Hemodialysis may be required. 4-Methylprazole, a potent inhibitor of alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning before coma, seizure, and renal failure have occurred (20 mg/kg/day). Pulmonary edema with hypoxemia has been (described in a number of patients following poisoning with ethylene glycol. The mechanism of production has not been) elucidated, but it appears to be noncardiogenic in origin in several cases. Respiratory support with mechanical ventilation and positive, and expiratory pressure may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing, and dysphagia.

VI. REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID: None

INCOMPATIBILITY (materials to avoid): Explosive decomposition may occur if combined with strong acids or strong bases and subjected to elevated temperatures. Therefore, avoid strong acids and strong bases at elevated temperatures. Avoid contamination with strong oxidizing agents and materials reactive with hydroxyl compounds.

HAZARDOUS POLYMERIZATION: Will Not Occur

CONDITIONS TO AVOID: None

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Wear suitable protective equipment. Small spills should be flushed with large quantities of water. Larger spills should be collected for disposal.

WASTE DISPOSAL METHOD: Incinerate in a furnace where permitted under appropriate Federal, State, and local regulations. At very low concentration in water, ethylene glycol is readily biodegradable in a biological wastewater treatment plant.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type): If personnel exposure exceeds exposure limits, select in accordance with 29CFR1910.134. NIOSH/MSHA approved respirator with organic vapor cartridge and dust/mist pre-filter recommended.

VENTILATION: General (mechanical) room ventilation is expected to be adequate if handled in covered equipment. Local exhaust ventilation is needed at points where vapor is expected to be vented to the workplace.

PROTECTIVE GLOVES: Natural rubber, nitrile, neoprene or polyvinyl chloride.

EYE PROTECTION: Monogoggles or faceshield.

OTHER PROTECTIVE EQUIPMENT: Eye bath and safety shower.

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

DANGER! Harmful or fatal if swallowed. Causes eye irritation. Prolonged or repeated breathing of mist or vapor harmful. May cause kidney and nervous system damage. Contains Ethylene Glycol which causes birth defects in laboratory animals. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated breathing of mist or vapor. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. FOR INDUSTRIAL USE ONLY.

OTHER PRECAUTIONS: None known.

X. REGULATORY INFORMATION

STATUS ON SUBSTANCE LISTS: The concentrations shown are maximum or ceiling levels (weight %) to be used for calculations for regulations. Trade Secrets are indicated by "TS".

FEDERAL EPA

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal to or greater than the reportable quantities (RQ's) in 40 CFR 302.4.

Components present in this product at a level which could require reporting under the statute are:

CHEMICAL	CAS NUMBER	UPPER BOUND CONCENTRATION %
Potassium Hydroxide	1310-58-3	0.60
Sodium Nitrite	7632-00-0	0.15
Dioxane	123-91-1	0.0041

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III

requires emergency planning based on Threshold Planning Quantities (TPQ's) and release reporting based on Reportable Quantities (RQ's) in 40 CFR 355 (used for SARA 302, 311, and 312).

Components present in this product at a level which could require reporting under the statute are: NONE

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III

requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDS's that are copied and distributed for this material.

Components present in this product at a level which could require reporting under the statute are:

CHEMICAL	CAS NUMBER	UPPER BOUND CONCENTRATION %
Ethylene Glycol	107-21-1	55.0

STATE RIGHT TO KNOW

CALIFORNIA Proposition 65 – This product contains trace levels of Dioxane which the State of California has found to cause cancer, birth defects or other reproductive harm.

MASSACHUSETTS 105 CMR 670.000 Right-to-Know, Substance List (MSL) Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products.

Components present in this product at a level which could require reporting under the statute are:

CHEMICAL	CAS NUMBER	UPPER BOUND CONCENTRATION %
EXTRAORDINARY HAZARDOUS SUBSTANCES (= > 0.0001%)		
Dioxane	123-91-1	0.0041
HAZARDOUS SUBSTANCES		
CHEMICAL	CAS NUMBER	UPPER BOUND CONCENTRATION %
Ethylene Glycol	107-21-1	55.0
Potassium Hydroxide	1310-58-3	0.56
Sodium Nitrite	7632-00-0	0.15

PENNSYLVANIA Right-to-Know, Hazardous Substance List

Hazardous Substances and Special Hazard Substances on the List must be identified when present in products.

Components present in this product at a level which could require reporting under the statute are:

CHEMICAL	CAS NUMBER	UPPER BOUND CONCENTRATION %
Ethylene Glycol	107-21-1	55.0
Sodium Nitrite	7632-00-0	0.15
Potassium Hydroxide	1310-58-3	0.56

Toxic Substances Control Act (TSCA) STATUS: The ingredients of this product are on the TSCA inventory.

CALIFORNIA RULE 443.1 VOC'S:

Voc. 549.93 G/L: Vapor Pressure 11.247 mm Hg at 20°C

NOTE: The opinions expressed are those of qualified experts, within we believe that the information contained is current as of the date of this Material Safety Data Sheet. Since the use of this information and of these opinions and the conditions of the use of the product are not within the control of Chromalox, it is the user's obligation to determine the conditions of safe use of the product.

Chromalox[®]
PRECISION HEAT AND CONTROL

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