EQUISTAR CHEMICALS. LP

MATERIAL SAFETY DATA SHEET

DEHYDRATED ALCOHOL USP

MSDS No. ALC 2/1200
Issue Date OCT 17. 1995

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER: 1200

PRODUCT DESCRIPTION: Dehydrated Alcohol. USP. Ethyl Alcohol. 200 Proof Punctilious (R)

SYNONYMS: Ethyl Alcohol - 200 Proof; Alcohol. Anhydrous; Ethanol

EQUISTA2

NAME AND ADDRESS:
Equistar Chemicals. LP
1221 McKinney Street. Suite 1600
P.O. Box 3646
Houston. Texas 77253-3646

EMERGENCY NUMBERS:
EQUISTAR (800) 245-4532
CHEMTREC (800) 424-9300

PRODUCT SAFETY:
EQUISTAR CHEMICALS. LP (800) 700-0946
FAX (713) 951-1574

SECTION 2 - COMPOSITION. INFORMATION ON INGREDIENTS

COMPOSITION	NOMINAL WT. %	EXPOSURE LIMITS*
Ethyl Alcohol (Ethanol) CAS RN: 64-17-5	100	TWA: 1000 ppm

* EXPOSURE LIMITS include ACGIH TLVs. OSHA (vacated) PELs. and/or OSHA Substance-specific Standards.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Clear liquid with alcohol odor. Colorless vapor. FLAMMABLE. High vapor concentrations can cause narcotic effects

SECTION 3 - HAZARDS IDENTIFICATION (continued)

(like dizziness and fatigue). May be irritating to the eyes.

PRIMARY ROUTES OF ENTRY: Swallowing. Skin Contact. Eye. or Inhalation.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED: Any pre-existing disorders or diseases of the nervous system. liver. gastrointestinal tract. respiratory system.skin. and eyes.

POTENTIAL HEALTH EFFECTS OF ETHYL ALCOHOL:

ETHYL ALCOHOL may cause eye and upper respiratory tract irritation. Short-term overexposure above 1.000 PPM by the inhalation route may cause central nervous system (CNS) effects such as headache and irritation of eyes. nose and throat. If continued for more than an hour further CNS effects may appear such as: dizziness. drowsiness. loss of appetite. and an inability to concentrate. Gastrointestinal (stomach) effects may occur with such symptoms as nausea and vomiting. Prolonged or repeated contact may dry skin and cause irritation. Chronic exposure may result in irritation of mucous membranes. headache. and/or symptoms of CNS depression such as drowsiness and lack of concentration. Excessive long-term exposure may also produce liver damage. Moderately toxic if swallowed.

Also see Toxicological Info. (Section 11) and Ecological Info. (Section 12)

SECTION 4 - FIRST AID MEASURES

FOR OVEREXPOSURE BY:

SWALLOWING: If victim is conscious and able to swallow. have victim drink water to dilute. Never give anything by mouth if victim is unconscious or having convulsions. This product poses a possible lung aspiration hazard if it is ingested. Induce vomiting only if advised by physician or Poison Control Center. CALL A PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY.

SKIN CONTACT: Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse.

EYE CONTACT: Immediately flush eyes with plenty of cool water for at least 15 minutes. Do not permit victim to rub eyes. GET MEDICAL ATTENTION IMMEDIATELY.

INHALATION: Immediately remove victim to fresh air. If victim has

SECTION 4 - FIRST AID MEASURES (continued)

stopped breathing. give artificial respiration. preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY.

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT: 55 deg F (13 deg C) ASTM D-56 (Tag Closed Cup)
AUTO-IGNITION TEMPERATURE: 685 deg F (363 deg C)
FLAMMABLE LIMITS IN AIR. % BY VOL. LOWER: 3.3
UPPER: 19
NFPA RATING: HEALTH (0) FIRE (3) REACTIVITY (0)
(Does not apply to exposure hazards other than during a fire.)

KNOWN OR ANTICIPATED HAZARDOUS PRODUCTS OF COMBUSTION:
Carbon monoxide and carbon dioxide can form upon combustion.

EXTINGUISHING MEDIA: Use dry chemical. "alcohol resistant" foam. or carbon dioxide; water may be ineffective. but water applied as a spray can absorb some of the fire's heat and should be used to keep fire-exposed containers cool.

FIRE FIGHTING INSTRUCTIONS: (Note - Individuals should perform only those fire-fighting procedures for which they have been trained.) If a leak or spill has not ignited. use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Water spray may be used to flush spills away from exposures and to dilute spills to nonflammable mixtures. Firefighters should wear full fire fighting turn out gear (full Bunker Gear). They should use self-contained breathing apparatus operating in the positive pressure mode and equipped with full eye protection and a full face piece when there is a possibility of exposure to smoke. fumes or hazardous decomposition products. Ethanol vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Alcohols burn with a pale blue flame which may be extremely hard to see under normal lighting conditions. Personnel may only be able to feel the heat of the fire without seeing flames. Extreme caution must be exercised in fighting alcohol fires.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

ENVIRONMENTAL PRECAUTIONS: Avoid uncontrolled releases of this material. Where spills are possible. a comprehensive spill

SECTION 6 - ACCIDENTAL RELEASE MEASURES (continued)

response plan should be developed and implemented.

ACCIDENTAL RELEASE PROCEDURES: Wear appropriate respiratory protection and protective clothing as described in Section 8 of ths MSDS. Turn off or remove all ignition sources. See Section 5 for further information on handling fire and explosion hazards. Contain spilled material. Transfer to secure containers. Where necessary. collect using absorbent media. In the event of an uncontrolled release of this material. the user should determine if the release is reportable under applicable laws and regulations.

SECTION 7 - HANDLING AND STORAGE

Protect container against physical damage. Detached or outside storage is preferred. Inside storage should be in an NFPA approved flammable liquids storage room or cabinet. All ignition sources should be eliminated. Smoking should be prohibited in storage areas. Electrical installations should be in accordance with Article 501 of the National Electrical Code. NFPA 30. Flammable and Combustible Liquids Code. should be followed for all storage and handling. Frequent careful leakage inspection should be done. Automatic sprinkler system should be provided. Isolate from oxidizers. chemicals capable of spontaneous heating. materials reacting with air or moisture to liberate heat. ignition sources and explosives. Consult local fire codes for additional storage information.

Keep packaged material out of sun and away from heat. Remove closure carefully; internal pressure may be present. Keep closure up to prevent leakage.

When contents are being transferred. the metallic container must be bonded to the receiving container and grounded to avoid static discharges. Never use pressure to empty. Replace closure securely after each opening.

Since emptied containers retain residual product (vapor or liquid). all precautions described on this MSDS must be observed.

SECTION 8 - EXPOSURE CONTROLS. PERSONAL PROTECTION

CONTROL MEASURES: Engineering controls should be used whenever feasible to maintain concentrations below acceptable exposure limits (Section 2). including but not limited to enclosures. local ventilation and dilution ventilation.

RESPIRATORY PROTECTION: Where engineering controls are not feasible

SECTION 8 - EXPOSURE CONTROLS. PERSONAL PROTECTION (continued)

or sufficient to achieve full conformance with acceptable exposure limits (Section 2). use NIOSH/MSHA approved respiratory protection equipment. Respirators should be selected based on the form and concentration of contaminant in air and in accordance with OSHA (29 CFR 1910.134) / ANSI Standard Z88.2.

PROTECTIVE CLOTHING: Wear gloves and protective clothing which are impervious to this material for the duration of anticipated exposure if there is potential for skin contact.

EYE PROTECTION: Wear safety glasses meeting the specifications of OSHA 29CFR 1910.133 / ANSI Standard Z87.1 where no contact with the eye is anticipated. Chemical safety goggles meeting the specifications of OSHA 29CFR 1910.133 / ANSI Standard Z87.1 should be worn whenever there is the possibility of splashing or other contact with the eyes.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	173 deg F* (78 deg C)
MELTING POINT:	-173 deg F* (-114 deg C)
VAPOR PRESSURE:	44.6 mm Hg @ 68 deg F* (20 deg C)
SPECIFIC GRAVITY:	0.78 - 0.85 @ 60 deg /60 deg F (16 deg C)
VAPOR DENSITY (AIR=1):	1.59*
SOLUBILITY IN WATER:	Complete*
APPEARANCE AND ODOR:	See Section 3 - Emergency Overview.

*for Pure Ethyl Alcohol

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: Generally stable

HAZARDOUS POLYMERIZATION: Not likely

CONDITIONS & MATERIALS TO AVOID: Contact with acetyl chloride or other oxidizing agents may result in a violent reaction.

HAZARDOUS DECOMPOSITION PRODUCTS: None expected.

SECTION 11 - TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (FROM THE LITERATURE) FOR ETHYL ALCOHOL:

Acute Data:

LC50 (inhl) rat:	20.000 ppm/10 hours
LDLo (skin) rabbit:	20.000 mg/kg
LD50 (oral) rat:	7060 mg/kg
LDLo (oral) human:	1400 mg/kg

Irritation Data (rabbit)
Standard Draize Test
Skin: 20 mg/24H. Reaction: Moderate
Eye: 500 mg/24H. Reaction: Mild

Teratogenicity:
No evidence of teratogenicity (birth defects) was noted following inhalation exposure by pregnant rats of airborne vapor concentrations of up to 16.000 ppm for 7 hours on days 1-9 of gestation. In the same study. pregnant rats exposed to 20.000 ppm showed severe narcosis; offspring of these rats did not show clear evidence of increased incidence of abnormalities.

OSHA TOXICITY LEVELS

Toxicity Level	LC50 Inhalation Rat (1-hour)(gases or vapors)	LD50 Skin Rabbit (24-hour)	LD50 Oral Rat
Highly Toxic	Less than or Equal to 200 ppm	Less than or Equal to 200 mg/kg	Less than or Equal to 50 mg/kg
Toxic	Greater than 200 ppm and Less than or Equal to 2000 ppm	Greater than 200 mg/kg and Less than or Equal to 1000 mg/kg	Greater than 50 mg/kg and Less than or Equal to 500 mg/kg

Note: This table was constructed based upon information from Appendix A of the OSHA Hazard Communication Standard. 29 CFR 1910.1200.

SECTION 12 - ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE INFORMATION (FROM THE LITERATURE) FOR ETHYL ALCOHOL:

When spilled on the land ethyl alcohol is apt to volatilize.

SECTION 12 - ECOLOGICAL INFORMATION (continued)

biodegrade. and/or leach into the ground water. It is anticipated based on physical properties of ethyl alcohol including water solubility. vapor pressure. and octanol/water coefficient (log P= -0.31) that water will serve as the terminal media. Based on these factors it is anticipated that this substance will neither adsorb to soil nor bioconcentrate in aquatic organisms. Once in water photolysis. oxidation. hydrolysis. and biodegradation is anticipated to occur.

ECOTOXICITY DATA (FROM THE LITERATURE) FOR ETHYL ALCOHOL:

Fish: Static and/or flow-through LC50(96-hr)= 13.000-15.300 mg/l

ECOTOXICITY LEVELS

Hazard Parameter	High	Middle	Low
Aquatic Acute Toxicity* (mg/l)	Less than or Equal to 1	Greater than 1 and Less than or Equal to 100	Greater than 100

* This parameter (static or flow-through) applies to test results for the following: 96-hour LC50 (fish). 48-hour EC50 (invertebrates). and 96-hour EC50 and/or IC50 (algae).

Note: This table is adapted from one which appears in "Environmental Toxicology and Risk Assessment". ASTM STP 1179. p. 34. 1993.

SECTION 13 - DISPOSAL CONSIDERATIONS

Information provided in this Material Safety Data Sheet applies only to the product as manufactured by Equistar Chemicals. LP. Processing. use. and contamination may make this information inappropriate for the material requiring disposal. State and local laws and regulations may differ from federal requirements. and requirements may change or be re-interpreted.

It is the responsibility of the waste generator to characterize waste streams relative to the pertinent regulatory provisions (including RCRA "characteristic" waste definitions 40 CFR 261 Subpart C) to ensure that applicable requirements are reviewed and met.

SECTION 14 - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT):

DOT Hazard Class:	Class 3 - Flammable Liquid
DOT Proper Shipping Name:	Ethyl Alcohol
Other DOT Information:	Identification No. UN1170
	Packing Group II
	Emergency Response Guide No. 127

For further information see Title 49. Code of Federal Regulations. parts 172 and 173.

SECTION 15 - REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA):

This product is (or if a mixture. the components of this product are) listed in the TSCA Inventory of Chemical Substances.

SARA TITLE III (SECTIONS 311/312) HAZARD CATEGORIES:

Immediate/Acute. Delayed/Chronic. Fire

One or more of the components of this product is associated with the health hazard(s) listed above. Since in most cases we have no data on the mixture and this component(s) is present at greater than 0.1 or 1.0 percent. we are conservatively assigning this hazard(s) to our product.

ATF DISTILLED SPIRITS ACT:

Use of ethyl alcohol without prior payment of applicable excise tax is strictly controlled by regulations promulgated and enforced by the Bureau of Alcohol. Tobacco and Firearms. Dept. of the Treasury. Governing regulations have been defined in Title 27. Code of Federal Regulations.

COMPONENTS OF POSSIBLE REGULATORY SIGNIFICANCE:

Component	CAS RN	Amount	SARA 313 - listed	Cal Prop 65 - listed	Other*
Ethyl Alcohol	64-17-5	100.0 %	No	No	Yes
Benzene	71-43-2	<0.5 ppm	Yes	Yes	Yes

* This category applies to a chemical if listed on one or more of the following additional regulatory lists: NJ and/or PA Right-to-Know; NTP Carcinogens; IARC Carcinogens Groups 1. 2A. or 2B; ACGIH TLVs;

SECTION 15 - REGULATORY INFORMATION (continued)

OSHA 29 CFR Part 1910. Subpart Z; WHMIS IDL; CERCLA Hazardous Substances; SARA 302 EHSs; and TSCA 12(b).

WARNING! This product contains (or may contain) a chemical (or chemicals) known to the State of California to cause cancer. birth defects or other reproductive harm.

SECTION 16 - OTHER INFORMATION

FOR INDUSTRIAL USE ONLY. NOT FOR HOUSEHOLD USE. NOT INTENDED OR PERMITTED FOR DRINKING BEVERAGE PURPOSES.

The information presented herein has been obtained from sources believed to be reliable. The information in Section 11 (Toxicological Information). 12 (Ecological Information). and 15 (Regulatory Information) represents selected data which Equistar Chemicals. LP believes may be pertinent for the use of this material. However. because of the possibility of human or mechanical error by our sources. Equistar Chemicals. LP. or others. Equistar Chemicals. LP does not guarantee the accuracy. adequacy or completeness of any information. and is not responsible for any errors or omissions or for any results obtained from use of such information. We assume no liability or responsibility. express or implied. for errors or omissions of any kind. and no warranties of merchantability or fitness. express or implied. are made or are to be implied. Consequently. you should review the information to determine whether it is adequate and appropriate to all aspects of your intended use of this material.

ISSUE DATE: OCT 17. 1995 SUPERSEDES: MAR 10. 1995