

Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name	Dehydration Alcohol 95	Product Code	65348
Manufacturer	EMD Chemicals Inc. P.O. Box 70 480 Democrat Road Gibbstown, NJ 08027 Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.	Effective Date	3/4/2003
		Print Date	2/13/2004

For More Information Call

856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

In Case of Emergency Call

800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Synonym Ethyl Alcohol : Denaturated Alcohol

Material Uses Laboratory Reagent

Chemical Family Aliphatic Alcohol

Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
ETHANOL	64-17-5	86
METHANOL	67-56-1	4
Isopropyl Alcohol	67-63-0	5
Water	7732-18-5	>5

Section 3. Hazards Identification

Physical State and Appearance Liquid.

Emergency Overview DANGER !POISON !
FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
VAPOR HARMFUL
MAY BE FATAL IF INHALED OR SWALLOWED.
CANNOT BE MADE NON-POISONOUS
HARMFUL IF ABSORBED THROUGH SKIN.
CAUSES EYE AND SKIN IRRITATION.
POSSIBLE BIRTH DEFECT HAZARD.
CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA.

Routes of Entry Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eyes Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.

Skin Hazardous in case of skin contact (permeator, irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation Extremely hazardous in case of inhalation. May be fatal if inhaled.

Continued on Next Page

Ingestion Extremely hazardous in case of ingestion. May be fatal if swallowed.

Potential Chronic Health Effects

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

Additional information See Toxicological Information (section 11)

Medical Conditions Aggravated by Overexposure:

Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Section 5. Fire Fighting Measures

Flammability of the Product	Product will burn.
Auto-ignition Temperature	The lowest known value is 362.78°C (685°F) (ETHANOL).
Flash Points	Closed cup: 15°C (59°F). Open cup: 20°C (68°F).
Flammable Limits	LOWER: 3.3% UPPER: 19%
Products of Combustion	These products are carbon oxides (CO, CO ₂).
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames, sparks and static discharge, of shocks, of heat, of oxidizing materials.
Explosion Hazards in Presence of Various Substances	<p>Risks of explosion of the product in presence of static discharge: Flammable in presence of open flames, sparks and static discharge. Explosive in presence of open flames, sparks and static discharge.</p> <p>Risks of explosion of the product in presence of mechanical impact: Flammable in presence of shocks. Explosive in presence of shocks.</p>
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Protective Clothing (Fire)	Be sure to use an approved/certified respirator or equivalent.
Special Remarks on Fire Hazards	Flammable gas and vapor.
Special Remarks on Explosion Hazards	Vapor may travel considerable distance to source of ignition and flash back.

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Section 6. Accidental Release Measures

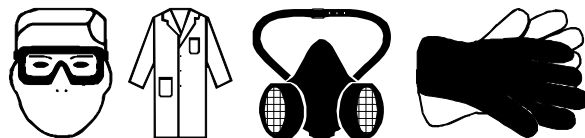
Small Spill and Leak	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill and Leak	Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
Spill Kit Information	The following EMD Chemicals Inc. SpillSolv (TM) absorbent is recommended for this product: SX1330 Solvent Treatment Kit

Section 7. Handling and Storage

Handling	Keep away from heat, sparks and flame. Use only with adequate ventilation. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
Storage	Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Store between 15 to 30°C (59 to 86°F).

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal Protection	
Eyes	Splash goggles.
Body	Lab coat.
Respiratory	Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
Hands	Gloves.
Feet	Not applicable.

Protective Clothing (Pictograms)**Personal Protection in Case of a Large Spill**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product Name

ETHANOL

Exposure Limits**AUVA (Austria, 1995).**Spitzenbegrenzung: 3800 mg/m³ 3 times per shift, Period: 60 minute(s).

Spitzenbegrenzung: 2000 ML/M3 3 times per shift, Period: 60 minute(s).

TWA: 1900 mg/m³

TWA: 1000 ML/M3

NOHSC (Australia, 1995).TWA: 1880 mg/m³

TWA: 1000 ppm

Lijst Grenswaarden (Belgium, 1998).VL: 1907 mg/m³

VL: 1000 ppm

SUVA (Switzerland, 1997).MAK: 1900 mg/m³

MAK: 1000 ML/M3

Ministry of Health (CL, 1992).TWA: 1500 mg/m³

TWA: 800 ppm

MAK-Werte Liste (Germany, 1998).Spitzenbegrenzung: 1920 mg/m³ 4 times per shift, Period: 30 minute(s).

Spitzenbegrenzung: 1000 ML/M3 4 times per shift, Period: 30 minute(s).

MAK: 960 mg/m³

MAK: 500 ML/M3

TRGS900 (Germany, 1999).Spitzenbegrenzung: 7600 mg/m³

Spitzenbegrenzung: 4000 ML/M3

MAK: 1900 mg/m³

MAK: 1000 ML/M3

Arbejdstilsynet (Denmark, 1996).GV: 1900 mg/m³

GV: 1000 ppm

Tyterveyslaitos (Finland, 1998).STEL: 2500 mg/m³

STEL: 1300 ppm

TWA: 1900 mg/m³

TWA: 1000 ppm

INRS (France, 1999).VLE: 9500 mg/m³

VLE: 5000 ppm

VME: 1900 mg/m³

VME: 1000 ppm

EH40-OES (United Kingdom (UK), 2000).TWA: 1920 mg/m³

TWA: 1000 ppm

NAOSH (Ireland, 1999).OEL: 1900 mg/m³

OEL: 1000 ppm

Ministry of Labour (KR, 1997).TWA: 1900 mg/m³

TWA: 1000 ppm

Secretary of Work and Social security (MX, 1994).CPT: 1900 mg/m³ Period: 8 hour(s).

CPT: 1000 ppm Period: 8 hour(s).

Nationale MAC-lijst (Netherlands, 2000).TGG 8 uur: 1000 mg/m³

TGG 8 uur: 500 ppm

NZ OSH (NZ, 1994).TWA: 1880 mg/m³

TWA: 1000 ppm

AFS (Sweden, 1996).TGV: 1900 mg/m³

TGV: 1000 ppm

NGV: 1000 mg/m³

NGV: 500 ppm

ACGIH TLV (United States, 2000).TWA: 1880 mg/m³

TWA: 1000 ppm

NIOSH REL (United States, 2000).TWA: 1900 mg/m³ Period: 10 hour(s).

TWA: 1000 ppm Period: 10 hour(s).

OSHA Final Rule (United States, 1989).TWA: 1900 mg/m³

TWA: 1000 ppm

ACGIH (United States, 1994). SkinTWA: 262 mg/m³

METHANOL

Isopropyl Alcohol

STEL: 328 mg/m³**OSHA (United States, 1989). Skin**TWA: 260 mg/m³STEL: 325 mg/m³**ACGIH (United States, 1994). Skin**STEL: 328 mg/m³

STEL: 250 ppm

TWA: 262 mg/m³

TWA: 200 ppm

NIOSH REL (United States, 1994). SkinSTEL: 325 mg/m³

STEL: 250 ppm

TWA: 260 mg/m³ Period: 10 hour(s).

TWA: 200 ppm Period: 10 hour(s).

OSHA Final Rule (United States, 1989). SkinSTEL: 325 mg/m³

STEL: 250 ppm

TWA: 260 mg/m³

TWA: 200 ppm

BAUA (Germany, 1997).Spitzenbegrenzung: 2000 mg/m³MAK: 500 mg/m³**DK-Arbejdstyilsinet (Denmark, 1996). Skin**GV: 490 mg/m³

GV: 200 ppm

INRS (France, 1996).VLE: 980 mg/m³

VLE: 400 ppm

National Authority for Occupational Safety/Health (Ireland, 1999). SkinSTEL: 1225 mg/m³

STEL: 500 ppm

OEL: 980 mg/m³

OEL: 400 ppm

Arbeidsinspectie (Netherlands, 1999).TGG 8 uur: 650 mg/m³

TGG 8 uur: 250 ppm

N-Arbejdstyilsinet (Norway, 1996).AN: 245 mg/m³

AN: 100 ppm

AFS (Sweden, 1996).KTV: 600 mg/m³

KTV: 250 ppm

NGV: 350 mg/m³

NGV: 150 ppm

EH40-OES (United Kingdom (UK), 1997).STEL: 1250 mg/m³

STEL: 500 ppm

TWA: 999 mg/m³

TWA: 400 ppm

ACGIH (United States, 1994).STEL: 1230 mg/m³

STEL: 500 ppm

TWA: 983 mg/m³

TWA: 400 ppm

NIOSH REL (United States, 1994).STEL: 1225 mg/m³

STEL: 500 ppm

TWA: 980 mg/m³ Period: 10 hour(s).

TWA: 400 ppm Period: 10 hour(s).

OSHA Final Rule (United States, 1989).STEL: 1225 mg/m³

STEL: 500 ppm

TWA: 980 mg/m³

Water TWA: 400 ppm
Not available.

Section 9. Physical and Chemical Properties

Odor	Characteristic.
Color	Colorless.
Physical State and Appearance	Liquid.
Molecular Weight	Not applicable.
Molecular Formula	Not applicable.
pH	Not available.
Boiling/Condensation Point	76°C (168.8°F)
Melting/Freezing Point	May start to solidify at -0.1°C (31.8°F) based on data for: Water. Weighted average: -11.35°C (11.6°F)
Specific Gravity	0.81 (Water = 1)
Vapor Pressure	6.3 kPa (47 mmHg) (@ 20°C)
Vapor Density	>1 (Air = 1)
Volatility	99% (w/w).
Odor Threshold	The lowest known value is 5 ppm (ETHANOL) Weighted average: 9.22 ppm
Evaporation Rate	>1
VOC	94 (%)
LogK_{ow}	Not available.
Solubility	Soluble in water.

Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	FLAMMABLE LIQUID AND VAPOR. (ETHANOL)
Incompatibility with Various Substances	Reactive with oxidizing agents, acids. Slightly reactive to reactive with metals.
Rem/Incompatibility	Avoid all possible sources of ignition (spark or flame).
Hazardous Decomposition Products	CO _x
Hazardous Polymerization	Will not occur.

Section 11. Toxicological Information

RTECS Number:	Ethanol	KQ6300000
	Methanol	PC1400000
	Isopropyl Alcohol	NT8050000
	Water	ZC0110000

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Toxicity	Acute oral toxicity (LD ₅₀): 3450 mg/kg [Mouse]. (ETHANOL). Acute dermal toxicity (LD ₅₀): 12800 mg/kg [Rabbit]. (Isopropyl Alcohol). Acute toxicity of the vapor (LC ₅₀): 20000 ppm 10 hour(s) [Rat]. (ETHANOL).
Chronic Effects on Humans	DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED] [ETHANOL]. Contains material which may cause damage to the following organs: blood, the reproductive system, liver.
Acute Effects on Humans	Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (permeator, irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Extremely hazardous in case of inhalation. May be fatal if inhaled. Extremely hazardous in case of ingestion. May be fatal if swallowed.
Special Remarks on Other Toxic Effects on Humans	VAPOR HARMFUL
Synergetic Products (Toxicologically)	Not available.
Irritancy	<u>Draize Test</u> : Not available.
Sensitization	Not available.
Carcinogenic Effects	This material is not known to cause cancer in animals or humans.
Toxicity to Reproductive System	Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED] [ETHANOL].
Teratogenic Effects	Not available.
Mutagenic Effects	Not available.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.

Section 13. Disposal Considerations

EPA Waste Number	D001
Treatment	Incineration, fuels blending or recycle. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. ALWAYS CONTACT PERMITTED WASTE DISPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

Section 14. Transport Information

DOT Classification	Not available.
TDG Classification	Not available.
IMO/IMDG Classification	Not available.
ICAO/IATA Classification	Not available.

Section 15. Regulatory Information

U.S. Federal Regulations TSCA 4(a) final test rules: Isopropyl Alcohol
 TSCA 8(b) inventory: ETHANOL; METHANOL; Isopropyl Alcohol; Water
 TSCA 8(d) H and S data reporting: Isopropyl Alcohol: 1986
 TSCA 12(b) one time export: Isopropyl Alcohol
 SARA 302/304/311/312 extremely hazardous substances: No products were found.
 SARA 302/304 emergency planning and notification: No products were found.
 SARA 302/304/311/312 hazardous chemicals: ETHANOL; METHANOL; Isopropyl Alcohol
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: ETHANOL: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; METHANOL: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; Isopropyl Alcohol: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
 SARA 313 toxic chemical notification and release reporting: METHANOL 4%; Isopropyl Alcohol 5%
 Clean Water Act (CWA) 307: No products were found.
 Clean Water Act (CWA) 311: No products were found.
 Clean air act (CAA) 112 accidental release prevention: No products were found.
 Clean air act (CAA) 112 regulated flammable substances: No products were found.
 Clean air act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada) CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
 Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
 Class D-1B: Material causing immediate and serious toxic effects (TOXIC).

CEPA DSL: ETHANOL; METHANOL; Isopropyl Alcohol; Water

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

International Regulations

EINECS

ETHANOL	200-578-6
METHANOL	200-659-6
Isopropyl Alcohol	200-661-7
Water	231-791-2

DSCL (EEC) R11- Highly flammable.
 R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
 R40/20/21/22- Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

International Lists Australia (NICNAS): ETHANOL; METHANOL; Isopropyl Alcohol; Water

Germany water class: ETHANOL

Japan (MITI): ETHANOL; METHANOL; Isopropyl Alcohol; Water

Japan (MOL): Isopropyl Alcohol

Korea (TCCL): ETHANOL; METHANOL; Isopropyl Alcohol; Water

Philippines (RA6969): ETHANOL; METHANOL; Isopropyl Alcohol; Water

China: No products were found.

State Regulations

Pennsylvania RTK: ETHANOL: (generic environmental hazard); METHANOL: (environmental hazard, generic environmental hazard); Isopropyl Alcohol: (environmental hazard, generic environmental hazard)

Massachusetts RTK: ETHANOL; METHANOL; Isopropyl Alcohol

New Jersey: Dehydration Alcohol 95

California prop. 65: No products were found.

Section 16. Other Information

National Fire
Protection
Association
(U.S.A.)



Changed Since Last
Revision

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Notice to Reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.