

# Material Safety Data Sheet

## Section 1. Product and Company Identification

|                                  |                                                                                                                                                                                                     |                                  |                                                                                           |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------|
| <b>Product Name</b>              | Ethanol, 70% w/v                                                                                                                                                                                    | <b>Product Code</b>              | EX0281                                                                                    |
| <b>Manufacturer</b>              | EMD Chemicals Inc.<br>P.O. Box 70<br>480 Democrat Road<br>Gibbstown, NJ 08027<br>Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc. | <b>Effective Date</b>            | 3/3/2003                                                                                  |
| <b>For More Information Call</b> | 856-423-6300 Technical Service<br>Monday-Friday: 8:00 AM - 5:00 PM                                                                                                                                  | <b>In Case of Emergency Call</b> | 800-424-9300 CHEMTREC (USA)<br>613-996-6666 CANUTEC (Canada)<br>24 Hours/Day: 7 Days/Week |
| <b>Synonym</b>                   | None.                                                                                                                                                                                               |                                  |                                                                                           |
| <b>Material Uses</b>             | Analytical reagent.                                                                                                                                                                                 |                                  |                                                                                           |
| <b>Chemical Family</b>           | Solution.                                                                                                                                                                                           |                                  |                                                                                           |

## Section 2. Composition and Information on Ingredients

| Component            | CAS #     | % by Weight |
|----------------------|-----------|-------------|
| ETHANOL              | 64-17-5   | 60-70       |
| WATER                | 7732-18-5 | 30          |
| 4-METHYL-2-PENTANONE | 108-10-1  | 0-1         |
| METHANOL             | 67-56-1   | 0-5         |
| ETHYL ACETATE        | 141-78-6  | 0-1         |

## Section 3. Hazards Identification

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Physical State and Appearance</b>                  | Liquid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Emergency Overview</b>                             | DANGER!<br>POISON!<br>FLAMMABLE LIQUID AND VAPOR.<br>VAPOR MAY CAUSE FLASH FIRE.<br>MAY BE FATAL IF SWALLOWED.<br>MAY CAUSE BLINDNESS IF SWALLOWED.<br>CANNOT BE MADE NON-POISONOUS.<br>BIRTH DEFECT HAZARD.<br>CONTAINS MATERIAL WHICH CAN CAUSE BIRTH DEFECT.<br>HARMFUL IF INHALED OR ABSORBED THROUGH SKIN.<br>CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.<br>CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, REPRODUCTIVE SYSTEM, LIVER, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA. |
| <b>Routes of Entry</b>                                | Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Potential Acute Health Effects</b>                 | <b>Eyes</b> Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.<br><b>Skin</b> Hazardous in case of skin contact (permeator, irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.<br><b>Inhalation</b> Hazardous in case of inhalation (lung irritant).<br><b>Ingestion</b> Extremely hazardous in case of ingestion. May be fatal or cause blindness if swallowed.                                                                                   |
| <b>Potential Chronic Health Effects</b>               | <b>Carcinogenic Effects</b> This material is not known to cause cancer in animals or humans.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Medical Conditions Aggravated by Overexposure:</b> | Additional information See Toxicological Information (section 11)<br>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

|                     |                                                                                                                                                                                                                                                                                                    |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact</b>  | 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.                                                                                                       |
| <b>Skin Contact</b> | 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 |

|                   |                                                                                                                                                                                                                                               |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b> | immediately.<br>If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.                                                                    |
| <b>Ingestion</b>  | 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

|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flammability of the Product</b>                         | Product will burn.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Auto-ignition Temperature</b>                           | The lowest known value is 398.9°C (750°F) (ETHANOL).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Flash Points</b>                                        | Closed cup: 10.556°C (51°F).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Flammable Limits</b>                                    | LOWER: 3.3% UPPER: 19%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Products of Combustion</b>                              | These products are carbon oxides (CO, CO <sub>2</sub> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Fire Hazards in Presence of Various Substances</b>      | Highly flammable in presence of open flames, sparks and static discharge, of heat, of oxidizing materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Explosion Hazards in Presence of Various Substances</b> | Flammable in presence of shocks.<br><b>Risks of explosion of the product in presence of static discharge:</b><br>Highly flammable in presence of open flames, sparks and static discharge.<br>Explosive in presence of open flames, sparks and static discharge.<br><br><b>Risks of explosion of the product in presence of mechanical impact:</b><br>Flammable in presence of shocks.<br>Explosive in presence of shocks.<br>SMALL FIRE: Use DRY chemical powder.<br>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.<br>Be sure to use an approved/certified respirator or equivalent.<br>Vapor may travel considerable distance to source of ignition and flash back. (ETHANOL) |
| <b>Fire Fighting Media and Instructions</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Protective Clothing (Fire)</b>                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Special Remarks on Fire Hazards</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Special Remarks on Explosion Hazards</b>                | Not available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Section 6. Accidental Release Measures

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Small Spill and Leak</b>  | Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Large Spill and Leak</b>  | Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. 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. |
| <b>Spill Kit Information</b> | The following EMD Chemicals Inc. SpillSolv ® absorbent is recommended for this product: SX1330 Solvent Treatment Kit                                                                                                                                                                                                                                                                                                                                                                             |

## Section 7. Handling and Storage

|                 |                                                                                                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Handling</b> | Keep away from heat, sparks and flame. Keep container closed. Do not get in eyes, on skin, or on clothing. Do not ingest. Avoid breathing vapors or spray mists. |
| <b>Storage</b>  | Keep container in a cool, well-ventilated area.                                                                                                                  |

## Section 8. Exposure Controls/Personal Protection

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

**Protective Clothing (Pictograms)**



**Personal Protection in Case** Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be

**of a Large Spill****Product Name**

ETHANOL

used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits****NIOSH REL (United States, 2000).**TWA: 1900 mg/m<sup>3</sup> Period: 10 hour(s).

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

**OSHA Final Rule (United States, 1989).**TWA: 1900 mg/m<sup>3</sup>

TWA: 1000 ppm

**AUVA (Austria, 1995).**Spitzenbegrenzung: 3800 mg/m<sup>3</sup> 3 times per shift, Period: 60 minute(s).Spitzenbegrenzung: 2000 ML/M<sup>3</sup> 3 times per shift, Period: 60 minute(s).MAK: 1900 mg/m<sup>3</sup>MAK: 1000 ML/M<sup>3</sup>**NOHSC (Australia, 1995).**TWA: 1880 mg/m<sup>3</sup>

TWA: 1000 ppm

**Lijst Grenswaarden (Belgium, 1998).**VL: 1907 mg/m<sup>3</sup>

VL: 1000 ppm

**SUVA (Switzerland, 1997).**MAK: 1900 mg/m<sup>3</sup>MAK: 1000 ML/M<sup>3</sup>**Ministry of Health (CL, 1992).**TWA: 1500 mg/m<sup>3</sup>

TWA: 800 ppm

**MAK-Werte Liste (Germany, 1998).**Spitzenbegrenzung: 1920 mg/m<sup>3</sup> 4 times per shift, Period: 30 minute(s).Spitzenbegrenzung: 1000 ML/M<sup>3</sup> 4 times per shift, Period: 30 minute(s).MAK: 960 mg/m<sup>3</sup>MAK: 500 ML/M<sup>3</sup>**TRGS900 (Germany, 1999).**Spitzenbegrenzung: 7600 mg/m<sup>3</sup>Spitzenbegrenzung: 4000 ML/M<sup>3</sup>MAK: 1900 mg/m<sup>3</sup>MAK: 1000 ML/M<sup>3</sup>**Arbejdstilsynet (Denmark, 1996).**GV: 1900 mg/m<sup>3</sup>

GV: 1000 ppm

**Tyterveyslaitos (Finland, 1998).**STEL: 2500 mg/m<sup>3</sup>

STEL: 1300 ppm

TWA: 1900 mg/m<sup>3</sup>

TWA: 1000 ppm

**INRS (France, 1999).**VLE: 9500 mg/m<sup>3</sup>

VLE: 5000 ppm

VME: 1900 mg/m<sup>3</sup>

VME: 1000 ppm

**EH40-OES (United Kingdom (UK), 2000).**TWA: 1920 mg/m<sup>3</sup>

TWA: 1000 ppm

**NAOSH (Ireland, 1999).**OEL: 1900 mg/m<sup>3</sup>

OEL: 1000 ppm

**Ministry of Labour (KR, 1997).**TWA: 1900 mg/m<sup>3</sup>

TWA: 1000 ppm

**Secretary of Work and Social security (MX, 1994).**CPT: 1900 mg/m<sup>3</sup> Period: 8 hour(s).

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

**Nationale MAC-lijst (Netherlands, 2000).**TGG 8 uur: 1000 mg/m<sup>3</sup>

TGG 8 uur: 500 ppm

**NZ OSH (NZ, 1994).**TWA: 1880 mg/m<sup>3</sup>

TWA: 1000 ppm

**AFS (Sweden, 1996).**TGV: 1900 mg/m<sup>3</sup>

TGV: 1000 ppm

NGV: 1000 mg/m<sup>3</sup>

NGV: 500 ppm

**ACGIH TLV (United States, 2000).**TWA: 1880 mg/m<sup>3</sup>

TWA: 1000 ppm

Not available.

**ACGIH (United States, 1994).**

WATER

4-METHYL-2-PENTANONE

|               |                                                    |
|---------------|----------------------------------------------------|
|               | STEL: 307 mg/m3                                    |
|               | STEL: 75 ppm                                       |
|               | TWA: 205 mg/m3                                     |
|               | TWA: 50 ppm                                        |
|               | <b>NIOSH REL (United States, 1994).</b>            |
|               | STEL: 300 mg/m3                                    |
|               | STEL: 75 ppm                                       |
|               | TWA: 205 mg/m3 Period: 10 hour(s).                 |
|               | TWA: 50 ppm Period: 10 hour(s).                    |
|               | <b>OSHA Final Rule (United States, 1989).</b>      |
|               | STEL: 300 mg/m3                                    |
|               | STEL: 75 ppm                                       |
|               | TWA: 205 mg/m3                                     |
|               | TWA: 50 ppm                                        |
| METHANOL      | <b>ACGIH (United States, 1994). Skin</b>           |
|               | TWA: 262 mg/m3                                     |
|               | STEL: 328 mg/m3                                    |
|               | <b>OSHA (United States, 1989). Skin</b>            |
|               | TWA: 260 mg/m3                                     |
|               | STEL: 325 mg/m3                                    |
|               | <b>ACGIH (United States, 1994). Skin</b>           |
|               | STEL: 328 mg/m3                                    |
|               | STEL: 250 ppm                                      |
|               | TWA: 262 mg/m3                                     |
|               | TWA: 200 ppm                                       |
|               | <b>NIOSH REL (United States, 1994). Skin</b>       |
|               | STEL: 325 mg/m3                                    |
|               | STEL: 250 ppm                                      |
|               | TWA: 260 mg/m3 Period: 10 hour(s).                 |
|               | TWA: 200 ppm Period: 10 hour(s).                   |
|               | <b>OSHA Final Rule (United States, 1989). Skin</b> |
|               | STEL: 325 mg/m3                                    |
|               | STEL: 250 ppm                                      |
|               | TWA: 260 mg/m3                                     |
|               | TWA: 200 ppm                                       |
| ETHYL ACETATE | <b>ACGIH (United States, 1996).</b>                |
|               | TWA: 1440 mg/m3                                    |
|               | TWA: 400 ppm                                       |
|               | <b>NIOSH REL (United States, 1994).</b>            |
|               | TWA: 1400 mg/m3 Period: 10 hour(s).                |
|               | TWA: 400 ppm Period: 10 hour(s).                   |
|               | <b>OSHA Final Rule (United States, 1989).</b>      |
|               | TWA: 1400 mg/m3                                    |
|               | TWA: 400 ppm                                       |

## Section 9. Physical and Chemical Properties

|                                      |                                                                                                          |
|--------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Odor</b>                          | Characteristic.                                                                                          |
| <b>Color</b>                         | Colorless.                                                                                               |
| <b>Physical State and Appearance</b> | Liquid.                                                                                                  |
| <b>Molecular Weight</b>              | Not applicable.                                                                                          |
| <b>Molecular Formula</b>             | Not applicable.                                                                                          |
| <b>pH</b>                            | Not available.                                                                                           |
| <b>Boiling/Condensation Point</b>    | The lowest known value is 64.55°C (148.2°F) (METHANOL). Weighted average: 84.66°C (184.4°F)              |
| <b>Melting/Freezing Point</b>        | May start to solidify at -0.1°C (31.8°F) based on data for: WATER. Weighted average: -78.43°C (-109.2°F) |
| <b>Specific Gravity</b>              | Weighted average: 0.79 (Water = 1)                                                                       |
| <b>Vapor Pressure</b>                | The highest known value is 12.9 kPa (97 mmHg) (@ 20°C) (METHANOL).                                       |
| <b>Vapor Density</b>                 | The highest known value is 1.6 (Air = 1) (ETHANOL). Weighted average: 1.58 (Air = 1)                     |
| <b>Volatility</b>                    | 99.9% (v/v). (METHANOL.)                                                                                 |
| <b>Odor Threshold</b>                | The highest known value is 100 ppm (METHANOL)                                                            |
| <b>Evaporation Rate</b>              | The highest known value is 5.91 (METHANOL) Weighted average: 1.4compared to (n-BUTYL ACETATE=1)          |
| <b>VOC</b>                           | 70 (%)                                                                                                   |
| <b>LogKow</b>                        | Not available.                                                                                           |
| <b>Solubility</b>                    | Soluble in water.                                                                                        |

## Section 10. Stability and Reactivity

|                                                |                                                                                     |
|------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Stability and Reactivity</b>                | The product is stable.                                                              |
| <b>Conditions of Instability</b>               | Not available.                                                                      |
| <b>Incompatibility with Various Substances</b> | Highly reactive with oxidizing agents.<br>Slightly reactive to reactive with acids. |

|                                         |                 |
|-----------------------------------------|-----------------|
| <b>Rem/Incompatibility</b>              | Not available.  |
| <b>Hazardous Decomposition Products</b> | Not available.  |
| <b>Hazardous Polymerization</b>         | Will not occur. |

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## Section 11. Toxicological Information

|                                              |                                                                                                                                                                                                                                                                                                                                                                                                             |                                                               |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>RTECS Number:</b>                         | ETHANOL<br>Water<br>4-Methyl-2-pentanone<br>Methanol<br>Ethyl Acetate                                                                                                                                                                                                                                                                                                                                       | KQ6300000<br>ZC0110000<br>SA9275000<br>PC1400000<br>AH5425000 |
| <b>Toxicity</b>                              | Acute oral toxicity (LD50): 3450 mg/kg [Mouse]. (ETHANOL).<br>Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (METHANOL).<br>Acute toxicity of the vapor (LC50): 64000 ppm 4 hour(s) [Rat]. (METHANOL).                                                                                                                                                                                                 |                                                               |
| <b>Chronic Effects on Humans</b>             | <b>DEVELOPMENTAL TOXICITY:</b> Classified Reproductive system/toxin/female, Reproductive system/toxin/male [PROVEN] [ETHANOL].                                                                                                                                                                                                                                                                              |                                                               |
| <b>Acute Effects on Humans</b>               | 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. Hazardous in case of inhalation (lung irritant).<br>Extremely hazardous in case of ingestion. May be fatal if swallowed. |                                                               |
| <b>Synergetic Products (Toxicologically)</b> | Not available.                                                                                                                                                                                                                                                                                                                                                                                              |                                                               |
| <b>Irritancy</b>                             | Draize Test: Not available.                                                                                                                                                                                                                                                                                                                                                                                 |                                                               |
| <b>Sensitization</b>                         | Not available.                                                                                                                                                                                                                                                                                                                                                                                              |                                                               |
| <b>Carcinogenic Effects</b>                  | This material is not known to cause cancer in animals or humans.                                                                                                                                                                                                                                                                                                                                            |                                                               |
| <b>Toxicity to Reproductive System</b>       | Classified Reproductive system/toxin/female, Reproductive system/toxin/male [PROVEN] [ETHANOL].                                                                                                                                                                                                                                                                                                             |                                                               |
| <b>Teratogenic Effects</b>                   | Not available.                                                                                                                                                                                                                                                                                                                                                                                              |                                                               |
| <b>Mutagenic Effects</b>                     | Not available.                                                                                                                                                                                                                                                                                                                                                                                              |                                                               |

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## Section 12. Ecological Information

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|---------------------------------------------------|---------------------------------------------------------------------|
| <b>Ecotoxicity</b>                                | Not available.                                                      |
| <b>BOD5 and COD</b>                               | Not available.                                                      |
| <b>Toxicity of the Products of Biodegradation</b> | The products of degradation are less toxic than the product itself. |

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## Section 13. Disposal Considerations

|                         |                                                                                                                                                                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EPA Waste Number</b> | D001                                                                                                                                                                                                                                                          |
| <b>Treatment</b>        | Incineration, fuels blending or recycle. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations. |

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## Section 14. Transport Information

|                                 |                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>DOT Classification</b>       | Proper Shipping Name: ETHYL ALCOHOL<br>Hazard Class: 3<br>UN number: UN1170<br>Packing Group: II<br>RQ: Not applicable. |
| <b>TDG Classification</b>       | Not available.                                                                                                          |
| <b>IMO/IMDG Classification</b>  | Proper Shipping Name: ETHYL ALCOHOL<br>Hazard Class: 3<br>UN number: UN1170<br>Packing Group: II<br>RQ: Not applicable. |
| <b>ICAO/IATA Classification</b> | Not available.                                                                                                          |

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## Section 15. Regulatory Information

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| <b>U.S. Federal Regulations</b> | TSCA 4(a) final test rules: 4-METHYL-2-PENTANONE; ETHYL ACETATE<br>TSCA 8(b) inventory: ETHANOL; WATER; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE<br>TSCA 8(d) H and S data reporting: 4-METHYL-2-PENTANONE: 1982<br>TSCA 12(b) one time export: 4-METHYL-2-PENTANONE; ETHYL ACETATE |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| WHMIS (Canada)                      | 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; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                |  |  |
|                                     | SARA 311/312 MSDS distribution - chemical inventory - hazard identification: ETHANOL: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; 4-METHYL-2-PENTANONE: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; METHANOL: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard; ETHYL ACETATE: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard |  |  |
|                                     | SARA 313 toxic chemical notification and release reporting: METHANOL 2.5%                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
|                                     | 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.                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
| International Regulations<br>EINECS | 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-2A: Material causing other toxic effects (VERY TOXIC).                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
|                                     | Class D-2B: Material causing other toxic effects (TOXIC).                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
|                                     | CEPA DSL: ETHANOL; WATER; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|                                     | This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.                                                                                                                                                                                                                                                                                                   |  |  |
|                                     | ETHANOL 200-578-6                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |
|                                     | WATER 231-791-2                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |
|                                     | 4-METHYL-2-PENTANONE 203-550-1                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
|                                     | METHANOL 200-659-6                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |
| DSCL (EEC)<br>International Lists   | ETHYL ACETATE 205-500-4                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|                                     | R11- Highly flammable.                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |
|                                     | Australia (NICNAS): ETHANOL; WATER; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                               |  |  |
|                                     | Germany water class: ETHANOL                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                     | Japan (MITI): ETHANOL; WATER; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
|                                     | Korea (TCCL): ETHANOL; WATER; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                                     |  |  |
|                                     | Philippines (RA6969): ETHANOL; WATER; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                             |  |  |
|                                     | China: No products were found.                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
|                                     | Pennsylvania RTK: ETHANOL: (generic environmental hazard); 4-METHYL-2-PENTANONE: (environmental hazard, generic environmental hazard); METHANOL: (environmental hazard, generic environmental hazard); ETHYL ACETATE: (environmental hazard, generic environmental hazard)                                                                                                                                                                                      |  |  |
|                                     | Massachusetts RTK: ETHANOL; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| State Regulations                   | New Jersey: ETHANOL; 4-METHYL-2-PENTANONE; METHANOL; ETHYL ACETATE                                                                                                                                                                                                                                                                                                                                                                                              |  |  |
|                                     | California prop. 65: No products were found.                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |

## Section 16. Other Information

|                                                 |   |                                                  |        |          |                                              |
|-------------------------------------------------|---|--------------------------------------------------|--------|----------|----------------------------------------------|
| Changed Since Last Revision<br>Notice to Reader | + | National Fire Protection Association<br>(U.S.A.) | Health | 3<br>1 0 | Fire Hazard<br>Reactivity<br>Specific Hazard |
|                                                 |   |                                                  |        |          |                                              |

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