

SAFETY DATA SHEET

1. Identification

Product identifier Ethyl Alcohol 96% (192 Proof)

Other means of identification

Synonyms Ethyl Alcohol 92-98% ; Ethanol

Recommended use General purpose solvent.

Recommended restrictions Uses other than the recommended use.

Manufacturer/Importer/Supplier/Distributor information

Company Name Greenfield Global USA Inc.

Address 58 Vale Road
Brookfield, CT 06804
USA

Telephone 203.740.3471

Fax 203.740.3481

Company Name Greenfield Global USA Inc.

Address 1101 Isaac Shelby Drive
Shelbyville, KY 40065
USA

Telephone 502.232.7600

Fax 502.633.6100

Emergency phone number

USA CHEMTREC: 1.800.424.9300 (CCN 17213)

International CHEMTREC: +1.703.527.3887 (CCN 17213)

2. Hazard(s) identification

Physical hazards Flammable liquids Category 2

Health hazards Serious eye damage/eye irritation Category 2

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Highly flammable liquid and vapor. Causes serious eye irritation.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of fire: Use water fog, alcohol-resistant foam, dry chemical powder, carbon dioxide to extinguish.

Storage Store in a well-ventilated place. Keep cool.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

| Chemical name | CAS number | % |
|----------------------|-------------------|----------|
| Ethanol | 64-17-5 | 92 - 98 |

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
Components not listed are either non-hazardous or are below reportable limits.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Headache. Coughing. Causes serious eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed. Combustion products may include: carbon oxides.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Highly flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

Environmental precautions**7. Handling and storage****Precautions for safe handling**

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid contact with eyes. Avoid prolonged exposure. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

| Components | Type | Value |
|-----------------------|------|------------------------|
| Ethanol (CAS 64-17-5) | PEL | 1900 mg/m3 1000 ppm |

US. ACGIH Threshold Limit Values

| Components | Type | Value |
|-----------------------|------|----------|
| Ethanol (CAS 64-17-5) | STEL | 1000 ppm |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value |
|-----------------------|------|------------------------|
| Ethanol (CAS 64-17-5) | TWA | 1900 mg/m3 1000 ppm |

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles). Chemical goggles are recommended.

Skin protection**Hand protection**

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Skin protection**Other**

Wear suitable protective clothing.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with organic vapor cartridge.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties**Appearance**

Physical state Liquid.
Form Liquid.
Color Clear liquid; invisible vapor.

Odor Sweet. Alcohol-like.

Odor threshold Not available.

pH Property has not been measured.

Melting point/freezing point > -175 - < -124.6 °F (> -115 - < -87 °C)

Initial boiling point and boiling range > 172.4 - < 176 °F (> 78 - < 80 °C)

Flash point > 59 - < 68 °F (> 15 - < 20 °C) closed cup

Evaporation rate Expected to be rapid.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Explosive limit - lower (%) 3.3 % (Ethanol)

Explosive limit - upper (%) 19 % (Ethanol)

Vapor pressure 5726 Pa (Ethanol) (68 °F (20 °C))

Vapor density 1.6 (Air = 1)

Relative density > 0.796 - < 0.825 (Water = 1) (77 °F (25 °C))

Solubility(ies)

Solubility (water) Miscible.

Partition coefficient (n-octanol/water) Not applicable, product is a mixture.

Auto-ignition temperature 685.4 °F (363 °C) (Ethanol)

Decomposition temperature Property has not been measured.

Viscosity Not available.

Other information

Density > 0.796 - < 0.825 g/cm³ (77 °F (25 °C))

Kinematic viscosity Property has not been measured.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information**Information on likely routes of exposure**

Inhalation Prolonged inhalation may be harmful.

Skin contact Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Eye contact Causes serious eye irritation.

Ingestion Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics

Headache. Coughing. Causes serious eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

| Components | Species | Test Results |
|-----------------------|---------|-------------------------|
| Ethanol (CAS 64-17-5) | | |
| Acute | | |
| Inhalation | | |
| <i>Vapor</i> | | |
| LC50 | Rat | 117 - 125 mg/l, 4 Hours |
| Oral | | |
| LD50 | Rat | 10470 mg/kg |

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

| Components | Species | Test Results | |
|-----------------------|---------|---------------------------|----------------------|
| Ethanol (CAS 64-17-5) | | | |
| Aquatic | | | |
| Algae | EC10 | Freshwater algae | 11.5 mg/l, 72 hours |
| | EC50 | Freshwater algae | 275 mg/l, 72 hours |
| Fish | LC50 | Freshwater fish | 11200 mg/l, 24 hours |
| | NOEC | Freshwater fish | 250 mg/l |
| Invertebrate | EC50 | Freshwater invertebrate | 5012 mg/l, 48 hours |
| | | Marine water invertebrate | 857 mg/l, 48 hours |
| | NOEC | Freshwater invertebrate | 9.6 mg/l, 10 days |
| | | Marine water invertebrate | 79 mg/l, 96 hours |
| Other | EC50 | Lemna minor | 4432 mg/l, 7 days |

| Components | Species | Test Results |
|--|--|---|
| | NOEC | Lemna minor 280 mg/l, 7 days |
| Other | | |
| Micro-organisms | LC50 | Micro-organisms 5800 mg/l, 4 hours |
| Terrestrial | | |
| Plant | EC50 | Terrestrial plant 633 mg/kg dw Terrestrial, plants |
| Persistence and degradability | The product is expected to be biodegradable. | |
| Bioaccumulative potential | The product is not expected to bioaccumulate. | |
| Partition coefficient n-octanol / water (log Kow) | | |
| Ethanol (CAS 64-17-5) | | -0.35 |
| Mobility in soil | Expected to be mobile in soil. | |
| Other adverse effects | The product contains volatile organic compounds which have a photochemical ozone creation potential. | |

13. Disposal considerations

| | |
|--|---|
| Disposal instructions | Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Local disposal regulations | Dispose in accordance with all applicable regulations. |
| Hazardous waste code | D001: Waste Flammable material with a flash point <140 F The waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| Waste from residues / unused products | Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Dispose of in accordance with local regulations. |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. Transport information

DOT

| | |
|-------------------------------------|---|
| UN number | UN1170 |
| UN proper shipping name | Ethanol solution |
| Transport hazard class(es) | |
| Class | 3 |
| Subsidiary risk | - |
| Label(s) | 3 |
| Packing group | II |
| Environmental hazards | |
| Marine pollutant | No. |
| Special precautions for user | Read safety instructions, SDS and emergency procedures before handling. |
| Special provisions | 24, IB2, T4, TP1 |
| Packaging exceptions | 4b, 150 |
| Packaging non bulk | 202 |
| Packaging bulk | 242 |

IATA

| | |
|-------------------------------------|---|
| UN number | UN1170 |
| UN proper shipping name | Ethanol solution |
| Transport hazard class(es) | |
| Class | 3 |
| Subsidiary risk | - |
| Packing group | II |
| Environmental hazards | No. |
| ERG Code | 3L |
| Special precautions for user | Read safety instructions, SDS and emergency procedures before handling. |

IMDG

| | |
|--------------------------------|------------------|
| UN number | UN1170 |
| UN proper shipping name | ETHANOL SOLUTION |

| | |
|---|--|
| Transport hazard class(es) | |
| Class | 3 |
| Subsidiary risk | - |
| Packing group | II |
| Environmental hazards | |
| Marine pollutant | No. |
| EmS | F-E, S-D |
| Special precautions for user | Read safety instructions, SDS and emergency procedures before handling. |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | This product is a liquid and when transported in bulk is covered under MARPOL 73/78 Annex II. This product is listed in the IBC Code. Product name: Ethyl Alcohol Ship type: - Pollution category: Z |

15. Regulatory information

| | |
|---|--|
| US federal regulations | This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. |
| TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) | |
| Not regulated. | |
| CERCLA Hazardous Substance List (40 CFR 302.4) | |
| Not listed. | |
| SARA 304 Emergency release notification | |
| Not regulated. | |
| OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) | |
| Not listed. | |
| Toxic Substances Control Act (TSCA) | All components of the mixture on the TSCA 8(b) inventory are designated "active". |
| Superfund Amendments and Reauthorization Act of 1986 (SARA) | |
| SARA 302 Extremely hazardous substance | |
| Not listed. | |
| SARA 311/312 Hazardous chemical | Yes |
| Classified hazard categories | Flammable (gases, aerosols, liquids, or solids) Serious eye damage or eye irritation |
| SARA 313 (TRI reporting) | |
| Not regulated. | |
| Other federal regulations | |
| Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List | |
| Not regulated. | |
| Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130) | |
| Not regulated. | |
| Safe Drinking Water Act (SDWA) | Not regulated. |
| FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace | |
| Ethanol (CAS 64-17-5) | Low priority |
| US state regulations | |
| US. Massachusetts RTK - Substance List | |
| Ethanol (CAS 64-17-5) | |
| US. New Jersey Worker and Community Right-to-Know Act | |
| Ethanol (CAS 64-17-5) | |
| US. Pennsylvania Worker and Community Right-to-Know Law | |
| Ethanol (CAS 64-17-5) | |
| US. Rhode Island RTK | |
| Ethanol (CAS 64-17-5) | |

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Industrial Chemicals (AICIS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| Taiwan | Taiwan Chemical Substance Inventory (TCSI) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

| | |
|---------------|--|
| Issue date | 10-May-2023 |
| Revision date | 10-May-2023 |
| Version # | 02 |
| HMIS® ratings | Health: 2 Flammability: 3 Physical hazard: 0 Personal protection: B |

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