MATERIAL SAFETY DATA SHEET

EFFECTIVE DATE: 09/12/90
HUMCO HOLDING GROUP, INC.
1008 WHITAKER - P.O. BOX 2550
TEXARKANA, TX 75504
903-793-3174

I. IDENTIFICATION

PRODUCT NAME: ETHANOL CDA 19, 190 Proof

CHEMICAL NAME: Denatured Ethanol

CHEMICAL FAMILY: Alcohols

FORMULA: N/A (mixture) MOLECULAR WEIGHT: N/A (mixture)

SYNONYMS: Completely Denatured Alcohol, Government Formula 19

CAS NAME: N/A (mixture)

II. PHYSICAL DATA

BOILING POINT, 760 mm Hg: 79°C (174°F)

FREEZING POINT: <-85°C (<121°F)

SPECIFIC GRAVITY (H2O = 1): 0.8120 @ 20/20°C

VAPOR PRESSURE AT 20°C: 50 mm Hg

VAPOR DENSITY (air = 1): 1.5

SOLUBILITY IN WATER by wt: Complete @ 20°C

EVAPORATION RATE (Butyl Acetate = 1): 3.8

APPEARANCE AND ODOR: Water-white liquid; nonresidual odor

PERCENT VOLATILES (BY VOLUME): 100

PREPARED BY: HUMCO HOLDING GROUP, INC.
PRODUCT NAME: ETHANOL CDA 19, 190 Proof

III. INGREDIENTS

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>%</th>
<th>EXPOSURE LIMITS</th>
<th>HAZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (CAS# 64-17-5)</td>
<td>90</td>
<td>See Section V</td>
<td>Irritant; reproductive hazard</td>
</tr>
<tr>
<td>Methyl Isobutyl Ketone (CAS #108-10-1)</td>
<td>4</td>
<td>See Section V</td>
<td>Irritant</td>
</tr>
<tr>
<td>Gasoline (unleaded)</td>
<td>1</td>
<td>See Section V</td>
<td>Harmful if inhaled, irritant</td>
</tr>
<tr>
<td>Water (CAS# 7732-18-5)</td>
<td>5</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 54 °F (12 °C) Tag Closed Cup; 67 °F (19 °C) Tag Open Cup

FLAMMABLE LIMITS IN AIR, % by volume:
LOWER: 3.3 (Ethyl Alcohol)
UPPER: 19.0 (Ethyl Alcohol)

EXTINGUISHING MEDIA: Apply alcohol-type or all-purpose-type foams by manufacturer's recommended techniques for large fires. Use CO2 or dry chemical media for small fires.

SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool fire-exposed containers and structures. Use water spray to disperse vapors; reignition is possible. Use self-contained breathing apparatus and protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point.

V. HEALTH HAZARD DATA

EXPOSURE LIMIT(S):
- Ethanol, 1000 ppm TWA OSHA & ACGIH
- Methyl isobutyl ketone, 50 ppm TWA OSHA & ACGIH
- Gasoline, 300 ppm TWA OSHA & ACGIH
- 500 ppm STEL OSHA & ACGIH

Values from OSHA CFR 1910.1000 Table Z-1-A and ACGIH 1991-92

EFFECTS OF ACUTE OVEREXPOSURE:

SWALLOWING: May cause dizziness, faintness, drowsiness, decreased awareness and responsiveness, euphoria, abdominal discomfort, nausea, vomiting, staggering gait, lack of coordination, and coma. Aspiration into the lungs may occur during ingestion or vomiting resulting in lung injury.

SKIN ABSORPTION: No adverse effects with normal skin. However, potentially harmful amounts of material may be absorbed across markedly abraded skin when contact is sustained, particularly in children.
**INHALATION:**
High vapor concentrations may cause a burning sensation in the throat and nose, stinging and watering in the eyes. At concentrations which cause irritation, dizziness, faintness, drowsiness, nausea and vomiting may also occur. Prolonged exposure to high concentrations of methyl isobutyl ketone may result in kidney and liver damage.

**SKIN CONTACT:**
Prolonged contact can cause local redness with dryness and cracking of the skin.

**EYE CONTACT:**
May cause irritation, experienced as temporary discomfort in the eyes, with excess blinking and tear production. There may be mild to moderate conjunctivitis, seen principally as an excess redness of the conjunctiva.

**EFFECTS OF REPEATED OVEREXPOSURE:**
Long-term repeated oral exposure to ethanol may result in the development of progressive liver injury with fibrosis.

**OTHER HEALTH HAZARDS:**
Repeated ingestion of ethanol by pregnant mothers has been shown to adversely affect the central nervous system of the fetus, producing a collection of effects which together constitute the fetal alcohol syndrome. These include mental and physical retardation, disturbances of learning, motor and language deficiencies, behavioral disorders, and small size head.

Prolonged exposure to gasoline can cause dizziness, weakness, weight loss, anemia, a feeling of agitation, plus pain, numbness, and tingling sensation in the limbs. The red blood cell count may be reduced, bone marrow may be hypoplastic, and hematuria may be found. Skin irritation can occur.

**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:**
Repeated exposures to ethanol may exacerbate liver injury produced from other causes. Because of its irritating and defatting properties, this material may aggravate an existing dermatitis.

**ADDITIONAL TOXICITY INFORMATION**
Repeated exposure to methyl isobutyl ketone has caused injury to the kidneys of male rats. Female rats and mice of both sexes were not affected in this manner. The relevance of this observation to human health is not known.

**EMERGENCY AND FIRST AID PROCEDURES:**

**SWALLOWING:**
Do not induce vomiting. Do not give anything to drink. Obtain medical attention urgently.

**SKIN:**
Flush with water.

**INHALATION:**
Remove to fresh air. Give artificial respiration if not breathing. Oxygen may be given by qualified personnel if breathing is difficult. Obtain medical attention.

**EYES:**
Immediately flush eyes thoroughly with water and continue washing for at least 15 minutes. Obtain medical attention, preferably from an ophthalmologist, urgently.

**NOTES TO PHYSICIAN:**
Symptoms vary with the alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05%-0.15% and approximately 25% of individuals will show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol and 50%-95% of individuals at this level are clinically intoxicated. Severe poisoning occurs when the blood ethanol level is 0.3%-0.5%. Above 0.5% the individual will be comatose and death can occur. The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration. Avoid the use of...
depressant drugs or the excessive administration of fluids. In the presence of hypoglycemia, administer 5%–10% glucose intravenously, plus thiamine 100 mg intramuscularly. Hemodialysis is indicated if the blood ethanol is above 5 mg/ml. Naloxone may be useful to reverse clinical alcoholic coma and 0.4–1.2 mg intravenously may arouse ethanol-intoxicated patients.

If a moderate amount of this product has been ingested and if there is likely to be a significant delay before hospitalization is possible, then in the absence of signs and symptoms of CNS depression or convulsions, and when the gag reflex is intact, ipecac may be used to produce vomiting. If vomiting is induced the patient’s head and upper body must be kept at a lower level than the hips to assist in the prevention of aspiration. Aspirated material may cause severe lung damage. If a significant quantity of product is ingested, remove by means of gastric lavage with subsequent activated charcoal. A cuffed endotracheal tube may be used to prevent aspiration.

When evacuation of the stomach is complete, 30–60 ml of Fleet’s Phospho-Soda diluted 1:4 in water may be given. Keep the patient under observation for 24 hours and check for signs of lung injury. It may require 2–4 weeks for resolution of lung infiltrates involving more than 30% of the lung volume.

VI. REACTIVITY DATA

| STABILITY: | Stable |
| CONDITIONS TO AVOID: | None |

INCOMPATIBILITY (materials to avoid):
Concentrated nitric and sulfuric acids, strong oxidizing agents.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:
Burning can produce carbon monoxide and/or carbon dioxide.
Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.

HAZARDOUS POLYMERIZATION: Will Not Occur

CONDITIONS TO AVOID: None

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Extinguish and do not turn on any ignition source until area is determined to be free from explosion or fire hazards. Collect large spills for disposal. Flush small spills with water.

WASTE DISPOSAL METHOD: Incinerate in a furnace where permitted under appropriate Federal, State and local regulations.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Self-contained breathing apparatus in high vapor concentrations.

VENTILATION:
This product should be confined within closed equipment, in which case general (mechanical) room ventilation should be satisfactory. Special, local ventilation may be needed at points where vapors are expected to escape to the workplace air.

PROTECTIVE GLOVES:
Neoprene
PRODUCT NAME: ETHANOL CDA 19, 190 Proof

EYE PROTECTION: Safety glasses

OTHER PROTECTIVE EQUIPMENT:
Eye bath, safety shower

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
WARNING! Flammable.
Harmful if inhaled or swallowed.
Causes eye irritation.
Aspiration may cause lung damage.
May cause dizziness and drowsiness.
May cause liver and kidney damage.
Keep away from heat, sparks, and flame.
Avoid breathing vapor.
Do not swallow.
Avoid contact with eyes.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FOR INDUSTRY USE ONLY

OTHER PRECAUTIONS:
PROCESS HAZARD: Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions.

Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Further information is available in a technical bulletin entitled "Ignition Hazards of Organic Chemical Vapors."

TRANSFER HAZARD: Vapors of this product may be ignited by static sparks. Use proper bonding and grounding during liquid transfer as described in National Fire Protection Association document NFPA 77.

X. REGULATORY INFORMATION

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

FEDERAL EPA

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

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

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Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312).

Components present in this product at a level which could require reporting under the statute are:
None
Superfund Amendments and Reauthorization
Act of 1986 (SARA) Title III
requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This
information must be included in all MSDSs that are copied and distributed for this material.
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**STATE RIGHT-TO-KNOW**

**CALIFORNIA Proposition 65**
This product contains trace amounts of Acetaldehyde and Benzene, which the state of California has found to cause cancer.

**MASSACHUSETTS Right-To-Know, Substance List (MSL) Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products.**
Components present in this product at a level which could require reporting under the statute are:

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**PENNSYLVANIA Right-To-Know, Hazardous Substance List Hazardous Substances and Special Hazardous Substances on the List must be identified when present in products.**
Components present in this product at a level which could require reporting under the statute are:

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

**CALIFORNIA SCAQMD RULE 443.1 VOC’S:**
VOC 801 g/l; Vapor Pressure 50 mm Hg @ 20 C

**OTHER REGULATORY INFORMATION:**

NEW YORK STATE BULK STORAGE REGULATIONS (GNYSRR Parts 595-599)
This product is covered by GNYSRR for Bulk Storage and Release Reporting and Response. Technical guidance and recommended practices are as follows:

MATERIALS OF CONSTRUCTION
Suitable materials of construction are: Steel, stainless steel, baked phenolic lined steel, galvanized steel, copper and copper alloys.

Materials not to be used: Aluminum.
Plastics are not recommended for "flammable liquids".

STORAGE SYSTEM DESIGN
Design should comply with applicable industry, Federal, and local codes for a Class IB Flammable liquid with regards to mechanical, electrical, safety and health components. Should also comply with NYS/DEC Chemical Bulk Storage proposed regulations Parts 589.3 to 589.6 (for existing tanks) or Parts 593.2 and 593.7 (for new or substantially modified tanks).
CONDITIONS FOR STORAGE
Store at normal ambient temperatures.

INSPECTION AND MAINTENANCE
A testing/inspection program which ensures structural integrity and proper system operation should be established. Inspection and maintenance procedures and testing of equipment should comply with NYS/DEC proposed regulations Parts 598.7 to 598.10.

TRANSFER AND UNLOADING
These operations should comply with NYS/DEC proposed regulations, Part 598.5.

Carcinogenicity Classification (components present at 0.1% or more)

IARC: not listed
NTP (USA): not listed
OSHA (USA): not listed
ACGIH: not listed