SECTION 1. MATERIAL IDENTIFICATION

MATERIAL NAME: METHYL ALCOHOL
OTHER DESIGNATIONS: Methanol, Wood Alcohol, Carbinol, Wood Naphtha, Methyl Hydroxide, Monohydroxy Methane, CH₃OH, CAS # 67-56-1
MANUFACTURER/SUPPLIER: Available from several suppliers, including: E.I. DuPont DeNemours & Co. (302)-774-2290 Chemicals & Pigments Dept (302) 441-9442 1007 Market St. Wilmington, DE 19898

SECTION 2. INGREDIENTS AND HAZARDS

METHYL ALCOHOL

CH₃OH

* Current OSHA Standard; ACGIH (1985-86) TLV adds (skin) notation.
NIOSH has recommended a TWA standard of 200 ppm with a fifteen minute ceiling of 800 ppm. This ceiling is well above the TLV STEL of 250 ppm.

<table>
<thead>
<tr>
<th>%</th>
<th>HAZARD DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ca 100</td>
<td>8 hr TWA: 200 ppm, or 260 mg/m³ (Skin) STEL: 250 ppm, or 310 mg/m³ HUMAN Eye: 5 ppm, primary irritation dose Oral: LD₅₀: 340 mg/kg Inhalation: TCL₅₀: 86,000 mg/m³ - Toxic irritant effects (systemic)</td>
</tr>
</tbody>
</table>

SECTION 3. PHYSICAL DATA

Boiling Point, 1 atm ............... 148.5°F (64.7°C)
Viscosity @ 20°C, cps .......... 0.59
Vapor density (Air=1) .......... 1.11
Specific gravity, 20/4°C .......... 0.791
Vapor pressure @ 21°C, mmHg ....... 100
Melting point .................. -144°F (-97.8°C)
Vapor pressure @ 50°C, mmHg ....... 400
Volatiles, % .................. ca 100
Water Solubility ................ Totally Miscible
Evaporation rate (BuAc=1) .......... 5.9
Molecular weight ............... 32.04

APPEARANCE & ODOR: Clear, colorless, highly polar liquid with a characteristic alcohol odor. The odor recognition threshold (100% of test panel) is 53.3 ppm

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point and Method
Autoignition Temp.
Flammability Limits in Air

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>69°F</td>
<td>120°F</td>
</tr>
<tr>
<td>725°F (385°C)</td>
<td>% by Volume</td>
</tr>
</tbody>
</table>

EXTINGUISHING MEDIA: Use carbon dioxide, dry chemical, or alcohol type foam. Do not use a solid stream of water since the stream will scatter and spread the fire. Use water spray to cool fire-exposed tanks/containers. Fires involving Methyl Alcohol are Class IB; use a blanketeting effect to smother fire.
Methyl Alcohol is a moderate explosion hazard and a dangerous fire hazard when exposed to heat, sparks, flame or oxidizers. Its vapors are heavier than air and may travel a considerable distance to an ignition source and flashback. Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting fires involving Methyl Alcohol.

SECTION 5. REACTIVITY DATA

Methyl Alcohol is stable in closed containers at room temperature under normal storage and handling conditions. It does not undergo hazardous polymerization. This material may react violently with chromic anhydride; iodine plus ethyl alcohol, and mercuric oxide; lead perchlorate; perchloric acid plus ethyl alcohol; dimethyl formamide plus phosphorous; potassium hydroxide plus chloroform; sodium hydroxide plus chloroform. It may also react with metallic aluminum at high temperatures.
Methyl Alcohol is incompatible with strong oxidizing agents (eg., nitrates, perchlorate or sulfuric acid), active metals, acetaldehyde, ethylene oxide, isocyanates, beryllium dihydride, chloroform, and potassium tert-butoxide. It may attack some forms of plastics and rubber. Thermal decomposition or burning will produce carbon monoxide, carbon dioxide and possible toxic formaldehyde and unburned methanol.
SECTION 6. HEALTH HAZARD INFORMATION

Methanol is a poisonous, narcotic chemical that may exert its effects through inhalation, skin absorption, or ingestion. Elimination of Methanol from the body is slow, and the toxic effects can be compounded by repeated excessive exposures over several days. Toxic effects are exerted upon the CNS, especially the optic nerve and possibly the retina. Symptoms of overexposure include dizziness, visual impairment, nausea, respiratory failure, muscular incoordination and narcosis. Visual disturbances may clear temporarily then re-occur and progress to blindness. Prolonged or repeated contact with the skin may cause dermatitis, erythema, and scaling. Vapors of Methanol are mildly irritating to the eyes, while direct contact with the liquid may cause irritation, pain and transient corneal opacity. Ingestion of Methanol can cause blindness and death. The fatal dose is 100-250 mL, although death from ingestion of less than 33 mL has been reported.

FIRST AID: EYE CONTACT: Immediately flush eyes, including under eyelids, with plenty of running water for at least 15 minutes. Get medical attention if irritation persists. SKIN CONTACT: Flush exposed area with water while removing contaminated clothing. Wash with soap and water. Get medical attention if irritation persists.

INHALATION: Remove victim to fresh air. Restore and/or support breathing as needed. Get medical help (Inplant Paramedic, community). INGESTION: Give victim 3-4 glasses of water or milk and induce vomiting by sticking finger to back of throat. Contact a Poison Control Center or physician. Transport victim to a medical facility immediately. Do not induce vomiting or give anything to drink if victim is unconscious or having convulsions. Get medical attention (Inplant, paramedic, community).

SECTION 7. SPILL, LEAK AND DISPOSAL PROCEDURES

Notify safety personnel of large spills or leaks. Remove all sources of heat and ignition. Provide maximum explosion-proof ventilation. Evacuate all personnel from the area except for those involved in clean-up. Remove leaking container to safe place if feasible. Clean-up personnel should wear protective clothing, gloves, boots, and a self-contained breathing apparatus. Absorb small quantities on paper towel, vermiculite, or other absorbent and place in closed container for disposal. Dike large spills and collect for reclamation or disposal. Water spray may be used to knock down vapor and to dilute and flush spill away from sensitive areas. Do not flush to sewer. Keep out of watersheds and waterways.

DISPOSAL: Place in suitable container for disposal by a licensed contractor or burn in an approved incinerator. Waste solvent may be reclaimed via filtration and distillation procedures. Methyl Alcohol has been designated as a hazardous waste by the EPA (RCRA CFR 261.33). The EPA Hazardous Waste No. is U154. Aquatic Toxicity Rating: T106c: Over 1000 ppm.

SECTION 8. SPECIAL PROTECTION INFORMATION

Provide general and local exhaust ventilation (explosion-proof) to meet TLV requirements. For emergency or non-routine exposures where the TLV may be exceeded, wear an appropriate NIOSH-approved respirator. All electrical service in use or storage areas should have an explosion-proof design. Prevent skin and eye contact by wearing rubber gloves and splash goggles or safety glasses. Use protective aprons, boots and face shield as necessary when splashing may occur. Eyewash stations and safety showers should be available in areas of use and handling. Provide suitable training to those working with Methanol. Monitor the workplace and keep accurate records.

Contact lenses pose a special hazard; soft lenses may absorb and all lenses concentrate irritants.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Store in tightly closed containers in a dry, well-ventilated area away from strong oxidizing agents, heat, sparks and open flame. Protect container from physical damage. When transferring or pouring Methyl Alcohol, ground and bond containers and equipment to prevent static sparks. Use non-sparking tools. Do not smoke in areas of use or storage. Use with adequate ventilation. Do not breathe vapors. Avoid contact with eyes and skin. This material is poisonous when introduced into the body metabolism. DO NOT INGEST!!! Provide preplacement medical exams and periodic medical surveillance for industrially exposed workers with emphasis on neurological and visual functions, liver, and kidney systems.

DOT CLASSIFICATION: Flammable liquid, UN1230
DOT LABEL: Flammable liquid.

DATA SOURCE(S) CODE (See Glossary) 1, 2, 4-12, 16, 19, 20, 23-26, 31, 34, 57-59, 43, 47, 65, 79, R.

APPROVALS

INDUST. HYGIENE/SAFETY

MEDICAL REVIEW:

GENIUM PUBLISHING Copyright © September 1, 1985