MATERIAL SAFETY DATA SHEET

METHANOL

1. CHEMICAL IDENTITY

Chemical Name : Methanol

Chemical Classification : Alcohol

Synonyms : Methyl Alcohol, wood alcohol, wood spirit, Colonial Spirit

Trade Name :

Formula : CH_3OH

C.A.S. No. : 67-56-1

U.N. No.: 1230

Regulated Identification :

Shipping Name : Methanol

Codes/Label : Flammable Liquid, Class 3

Hazchem Code No. : 2 P E

Hazardous waste I.D. No. : 17

Hazardous ingredients :	C. A. S. No.
1. Methyl alcohol	67-56-1

2. PHYSICAL AND CHEMICAL DATA

Boiling Range/point degreeC : 64.5

Physical State: Liquid

Melting/Freezing Point degree C : - 97.8

Vapour Pressure at 35 degree C : 100 mm Hg at 21.2 degree C

Vapour Density : 1.10

Solubility in water at 30 degree C : Miscible

(Air = 1)

Specific Gravity : 0.79
Water = 1

pH :
Neutral

Appearance : Colourless, Watery

Odour : Alcoholic odour

Others : Miscible with Ethanol, Ether, Benzene, Ketones & Other Organic solvents. Vapours forms explosive mixtures with air and Oxygen.

3. FIRE AND EXPLOSION HAZARD DATA

Flammability :
Yes

LEL : 6.0 %

UEL : 36.5 %

Flash Point degree C : 16.1 (OC) vapours form explosive mixture with air/oxygen.

Autoignition temperature degree C
463.8

TDG Flammability : 3

Explosion Sensitivity to **Impact :** Stable

Flash Point degree C : 11.11 (CC)

Explosion Sensitivity to Static **Electricity :** Yes. Vapours are explosive

Hazardous Combustion Products : Emits acrid smoke and irritating fumes, CO.

Hazardous **Polymerisation :** Will not occur

Combustible liquid : Yes

Flammable Material : Yes

Pyrophoric Material : No

Explosive Material : No

Oxidiser : No

Organic Peroxide : No

Corrosive Material : NO

Others : No

4. REACTIVITY DATA

Chemical Stability :	Stable
Incompatibility with other material :	Strong Oxidisers, BeryliumDihydride, Metals (K, Mg), Carbon Tetra chloride + Metals (Al, Mg, Zn), Oxidants.
Reactivity :	Violent reaction with alkaline aluminium salt, acetyl bromide, chloroform + sodium hydroxide, Nitric acid, $HClO_4$, $P2O_3$.
Hazardous Reaction Products :	Combustion will produce carbon monoxide and asphyxiants.

5. HEALTH HAZARDS DATA

Routes of Entry	Inhalation, Ingestion, Eyes and skin.
Effects of Exposure/Symptoms	High concentrations can produce central nervous system depression and optic nerve damage. 50,000 ppm will probably cause death in 1-2 hrs. , is absorbed through skin. Swallowing may cause death or eye damage.
Eyes	Liquid may cause conjunctival irritation and transient corneal damage. vapour may cause conjunctival irritation.
Skin	Material may cause irritation. Repeated or prolonged contact may produce defatting of the skin leading to irritation and dermatitis. Liquid may be absorbed through the skin in toxicologically significant amounts if area of contact is large and exposure prolonged.
Ingestion	Swallowing may have the following effects : Symptoms similar to alcohol intoxication, Central nervous system depression, nausea, vomiting, loss of co-ordination, temporary or permanent blindness, coma and death.
Inhalation	Exposure to vapour may have the following effects :- Headache, Exposure to vapour at concentrations of 1000 ppm and above may have the following effect Systemic effects similar to those resulting from ingestion. Because of slow elimination from the body repeated exposures may result in accumulation.

Emergency Treatment	Remove the victim from exposed area and apply artificial respiration if breathing has stopped. Induce vomiting and give 2 teaspoons of baking soda in a glass of water. In case of skin or eyes flush with plenty of water for 15 minutes. Seek medical aid.			
TLV (ACGIH)	200 ppm	260 mg/m^3	STEL : 250 ppm,	310 mg/m^3
Permissible Exposure Limit	200 ppm	260 mg/m^3	Odour Threshold 100 ppm,	130.87mg/m^3
LD - 50 (Oral Rate)	5628 mg/kg	IDLH	25000 ppm,	19230 mg/m^3
NFPA Hazard Signals	Health	Flammability	Reactivity	Special
	1	3	0	--

6. PREVENTIVE MEASURES

Personal Protective Equipment	VENTILATION : Use only with adequate ventilation. Ventilate as needed to comply with exposure limit. Explosion proof ventilation Equipment required. EYE : Splash proof chemical goggles or full face shield recommended to protect against splash of product. GLOVES : Protective gloves recommended to protect against contact with product. The following glove materials are acceptable , Neoprene, Nitrile, Polyvinyl Alcohol, Viton. RESPIRATOR : Use a positive pressure-demand full face supplied air respirator or SCBA for exposures above 50x of the exposure limit. If the exposure is above IDLH (Immediately dangerous to life and health) or there is the possibility of an uncontrolled release or exposure levels are unknown. Then use a positive pressure-demand full-face supplied air respirator with escape bottle or SCBA.
Handling and skin and Storage Precautions	Use in well ventilated area. Avoid inhaling vapour. Avoid contact with eyes, clothing. Keep container tightly closed when not in use. Storage should be cool, well ventilated. Store away from sources of heat or ignition. To avoid moisture contamination, store under a nitrogen blanket or fit a dessicant unit in a tank vent line. storage and transfer of equipment should be adequately earthed and bonded to prevent the accumulation of static charges. Storage tanks must be positioned within a bunded area. Suitable storage materials are :- mild steel, stainless

steel, Do not
store in aluminum and its alloys, lead zinc, certain rubbers, polystyrene. Because of its
corrosive nature, extreme care should be exercised in the choice of materials for pumps,
gaskets and lines. For gaskets and seals use ;- compressed asbestos, butyl rubber, PTFE.

Follow Petroleum rules 1976.

7. EMERGENCY AND FIRST AID MEASURE

FIRE	FIRE EXTINGUSTING MEDIA	Burns with almost invisible flames . Do not extinguish fires unless flow/leakage can be stopped. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.
FIRE	Special Procedures	Keep the container cool by spraying water if exposed to heat or flame. Do not use water jet. Burns with almost invisible flame. Use “Paper on rod” detector or salt water spray to detect flame boundary if necessary.
	Unusual Hazards	Containers may explode in fire.
EXPOSURE	First Aid Measures	EYES : Immediately flood the eye with plenty of water, preferably warm, for at least 20 minutes .holding the eye open. Obtain medical attention urgently. SKIN : Immediately flood the skin with large quantities of water, preferably under a shower. Remove contaminated clothing as washing proceeds. Continue washing for at least 20 minutes . INHALATION : Remove from exposure. Move to fresh air. Keep warm and at rest. If there is

		difficulty in breathing, give oxygen. If breathing stops or shows signs of failing, apply artificial respiration. If heart beat absent, give external cardiac compression. Obtain medical attention urgently..
	Antidotes/Dosages	Baking soda in glass of water . Call on a Doctor.
Notes to Physician	Never administer anything by mouth if a victim is losing consciousness, is unconscious, or is convulsing. Do not induce vomiting. Have the victim drink aboutatleast 240-300 ml of water to dilute stomach contents . If the vomiting occurs naturally, lean the victim forward in order to reduce risk of aspiration. Repeat administration of water. Keep warm and at rest. If there is difficulty in breathing give oxygen. If breathing stops or shows signs of failing, apply artificial respiration. Do not use mouth to mouth ventilation. If heartbeat absent, give external cardiac compression. In acute poisoning artificial respiration and alkali therapy of acidosis may be necessary as a matter of urgency. Gastric Lavage, I.V. Infusion by Sodium bicarbonate, Massive alkalization in life saving and eye saving measures . Estimate alkali reserve in blood or pH of urine and plan further treatment accordingly. Give samll quantity of Ethyl alcohol every 4 hourly.	
SPILLS	Steps to be taken	Contain and absorb using earth, sand or inert materials (if feasible) . Transfer into suitable containers for recovery or disposal. If possible soak up remainder with absorbent material. Finally flush the area with plenty of water. Contaminated absorbent material may pose the same hazard as the spilled product. Treat contaminated water used for spill / leak control or used for dilution
	W aste disposal Method	Incineration. Dispose of in accordance with all

applicable local and national regulations. If correctly incinerated this material will decom pose to carbon dioxide and water only.

8. ADDITIONAL INFORMATION / REFERENCES :

A human poison by ingestion, Poison also by skin contact. The main toxic effect is extended to the nervous system, particularly optic nerves and retina. which may lead to permanent blindness. Once absorbed, it is slowly eliminated. Coma by severe exposure may last for 2-4 days. Persons with eye, live , kidney and lung problems should avoid contact with this . Periodic medical check up is recommended. Dangerous fire hazard when exposed to heat, flame, and oxidiser.