



TAG SOLVENT PRODUCTS (PTY)LTD.

MATERIAL SAFETY DATA SHEET **METHANOL**

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common name	: Methanol		
Supplier	: TAG Solvent Products Mallet Road/Weg Knights Germiston 1401 Republic of South Africa TEL: +27 11 822-1600		
Synonym	: Wood alcohol, methyl alcohol, Methyl hydroxide, Methylol, Monohydrxymethane, Wood naphtha, Wood spirit		
Trade name	: Methanol		
Material uses	: <i>Consumer products:</i> Manufacture of automotive antifreeze. <i>Industrial applications:</i> Chemical synthesis. Solvent for nitrocellulose. <i>Petrochemical industry:</i> Used in the manufacture of formaldehyde, acetic acid, methyl amines, methyl chloride, methyl methacrylate and paint strippers.		

2 COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS#	% By Weight	Exposure Limits
Methanol	67-56-1	99.99	ACGIH TLV (United States, 2002). TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³

3 HAZARDS IDENTIFICATION

Physical state and appearance	: Liquid.
Emergency overview	: DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOUR. VAPOUR MAY CAUSE FLASH FIRE. HARMFUL IF INHALED OR SWALLOWED. CAUSES SEVERE EYE IRRITATION. CAUSES RESPIRATORY TRACT AND SKIN IRRITATION. Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing vapour or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Avoid exposure during pregnancy.
Routes of entry	: Eye contact. Ingestion. Inhalation. Absorbed through the skin.
Potential acute health effects	
Eyes	: Hazardous in case of eye contact (irritant)
Skin	: Hazardous in case of skin contact.
Inhalation	: Harmful in case of inhalation
Ingestion	: Harmful if swallowed. May be fatal if swallowed.
Potential chronic health effects	: CARCINOGENIC EFFECTS: Not listed MUTAGENIC EFFECTS: Not listed. TERATOGENIC EFFECTS: classified PROVEN for human.
Medical conditions aggravated by overexposure	: Persons with pre-existing skin, eye, respiratory or neurological conditions might be more sensitive. Persons also exposed to FORMALDEHYDE or FORMIC ACID might be more sensitive. Persons recently or concurrently ingesting ETHANOL might be less sensitive.
Overexposure/signs/Symptoms	: EYE CONTACT: Can irritate eyes and cause blurred vision and/or blindness. INHALATION: can irritate nose, mouth and throat causing coughing and wheezing. Exposure to high concentrations can cause headaches, nausea, vomiting, dizziness and death. SKIN CONTACT: May cause dryness and cracking of the skin. Methanol can affect you by passing through the skin. INGESTION: A latency usually of 12-18 hours, symptoms include initial inebriation. Headache, weakness, fatigue, leg cramps, nausea, vomiting, diarrhea, violent abdominal pains, back pain, leg pain, delirium progressing rapidly to coma; dimness of vision with dilated pupils reacting poorly if at to light, bilateral blindness (usually permanent). Breathing is rapid and shallow. Death in coma usually due to respiratory failure.

See toxicological information (section 11)

Eye contact	: Check for and remove any contact lenses. Immediately flush the eyes with running water for at least 15 minutes, keep eyelids open. Cold water may be used. Get medical attention.
Skin contact	: In the case of contact, flush the skin with plenty of water for at least 15 minutes while removing the contaminated clothing and shoes. Cold water may be used. Wash clothes before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	: If inhaled, remove to fresh air. If nit breathing apply artificial respiration. If breathing is laboured, give oxygen. Get medical attention.
Ingestion	: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Notes to physician	: Support respiratory and cardiovascular function.

5	<i>FIRE FIGHTING MEASURES</i>
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Flammability of the product	: Flammable
Autoignition temperature	: 463.89°C (867°F)
Flash points	: CLOSED CUP: 12.22°C (54°F). OPEN CUP: 16.11°C (61°F). (Cleveland).
Flammable limits	: LOWER: 6% UPPER: 36.5%
Products of combustion	: These products are carbon oxides (CO, CO ₂)
Fire hazards in presence of various substances	: Highly flammable in the presence of open flames and sparks, of heat and of combustible material.
Explosion hazards in presence of various substances	: No data available.
Fire fighting media and instructions	: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet on order to prevent pressure build-up, autoignition or explosion.
Protective clothing (fire)	: Wear MSHA/NIOSH self-contained respirator or equivalent and full protective gear.
Special remarks on fire hazards	: Explosive in the form of vapour when exposed to heat or flame. Vapour may travel considerable distances to sources of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes.
Special remarks on explosive hazards	: No additional remarks.

6	<i>ACCIDENTAL RELEASE MEASURES</i>
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Small spill or leak	: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large spill or leak	: 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 touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed.

7 *HANDLING AND STORAGE*

Handling	: Keep away from heat sparks and flame. Keep container closed. Use only with adequate ventilation. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
Storage	: Store in segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

8 *EXPOSURE CONTROLS, PERSONAL PROTECTION*

Engineering controls	: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour below their respective threshold limit values. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal protection	
Body	: Chemical resistant protective suite.
Eyes	: Splash goggles.
Respiratory	: Vapour respirator. Be sure to use an approved/certified or equivalent. Wear appropriate respirator when ventilation is inadequate.
Hands	: Butyl rubber gloves.
Feet	: Chemical resistant safety boots.
Protective clothing	: Splash goggles. Full chemical resistant protective suit. Vapor respirator. Butyl gloves. Chemical resistant boots.
Personal protection in case of large spills	: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling the product.

Product name	Exposure limits
Ethanol	ACGIH TLV (United States, 2002). TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³

9 *PHYSICAL AND CHEMICAL PROPERTIES*

Physical state and appearance	: Liquid.
Colour	: Colourless. Clear. Mobile liquid.
Odor	: Pungent. Alcohol like. (Strong).
Taste	: Not available.
Molecular weight	: 32.04 g/mole
Molecular formula	: C-H4-O
PH (1% soln/water)	: 7 [Neutral.]
Boiling/condensation point	: 64.7°C (148.5°F)
Melting/freezing point	: -97.8°C (-144°F)
Critical temperature	: 240°C
Specific gravity	: 0.79(water=1)
Vapor pressure	: 97.68mm of Hg (@20°C)
Vapor density	: 1.1 (Air=1)
Volatility	: 100%(vlv). 100%(w/w)
Odor threshold	: 160 ppm
Evaporation rate	: 2.1 compared to Solvent.
VOC	: 100 (%)
Viscosity	: 61.4cP.
LogK_{ow}	: The product is more soluble in water; log(oil/water) = 0.8.
Iconicity (in water)	: Not available.
Dispersion properties	: See solubility in water, methanol, diethyl ether.
Solubility	: Soluble in cold water, hot water, methanol, diethyl ether.
Physical chemical comments	: No additional remark.

10 STABILITY AND REACTIVITY

Stability and reactivity	: The product is stable.
Conditions of instability	: No additional remark.
Incompatibility with various substances	: highly reactive with oxidizing agents.
Hazardous decomposition products	: No data available
Hazardous polymerization	: Will not occur.

11 TOXICOLOGICAL INFORMATION

Toxicity to animals	: Acute oral toxicity (LD50): 5628 mg/kg [Rat]. Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. Acute toxicity of the vapour (LC50): 64000 mg/m ³ 4 hour(s) [Rat].
Chronic effects on humans	: TERATOGENIC EFFECTS: Classified PROVEN for humans. DEVELOPMENTAL TOXICITY: Classified reproductive system/toxin/female. Reproductive system/toxin/male [PROVEN]. <i>Causes damage to the following organs:</i> the nervous system, the reproductive system.
Other toxic effects on humans	: Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator)

Special remarks on toxicity to animals	: Bioconcentration factor = 0.2 from a recommended regression-derived equation.
Special remarks on chronic effects on humans	: May be fatal or cause blindness if swallowed..
Special remarks on other toxic effects on humans	: Narcotic.

12 ECOLOGICAL INFORMATION

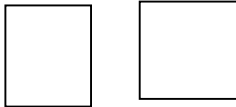
Ecotoxicity	: Ecotoxicity in water (LC50): 29400 mg/l 96 hours [Fathead minnow].
BOD and COD	: BOD5 is 0.36 lb/lb [5 days].
Biodegradable/OECD	: Biodegradable from OECD. Standard dilution BOD = 48% in 5 days BOD Theoretical, sewage inocula.
Mobility	: No data available
Products of degradation	: Carbon dioxide (CO ₂) is a product of biodegradation.
Toxicity of the products of biodegradation	: The products of biodegradation are less toxic than the original product.
Special remarks on the products of biodegradation	: The bioconcentration factor got Methanol = 0.2 form recommended regression-derived equation.

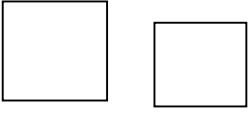
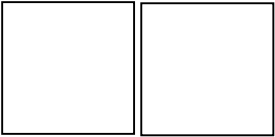

13 DISPOSAL CONSIDERATIONS

Waste information	: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste stream	: RCRA Hazardous Waste: U154, RQ of 5000lbs.

Consult your local or regional authorities.

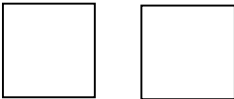
14 TRANSPORT INFORMATION

Regulatory information	UN number	Proper shipping name	Class	Pack grp	Label	Additio nal informa tion
DOT Classification	UN 1230	METHANOL	DOT CLASS 3: Flammable liquid. DOT CLASS 6.1: Poisonous material.	II		Reportable quantity 100 lbs. (45.36 kg)

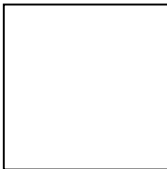
TDG Classification	UN 1230	METHANOL	TDG CLASS 3: Flammable liquid. TDG CLASS 6.1: Poisonous material.	II		
IMDG Classification	UN 1230	METHANOL	IMDG CLASS 3.2: Flammable liquid. IMDG CLASS 6.1: Poisonous material.	II		Reportable quantity 2268 kg
IATA-DGR Classification	UN 1230	METHANOL	IATA CLASS 3: Flammable liquid. ITAT CLASS 6.1: Poisonous material.	II		

15 REGULATORY INFORMATION

HCS Classification	: Class: Flammable liquid having flash point lower than 37.8°C (100°F). Class: Toxic.
U.S. Federal regulations	: TSCA 8(b) inventory: <i>Methanol</i> SARA 302/304/311/312 extremely hazardous substances: No reports were found. SARA 302/304 emergency planning and notification: No products were found. SARA 302/304/311/312 hazardous chemicals: No products were found. SARA 311/312 MSDS distribution- chemical inventory – hazardous identification: Methanol. SARA 313 toxic chemical notification and release reporting: Methanol Clean water act (CWA) 307: No products were found. Clean water act (CWA) 311: No products were found. Clean water act (CAA) 112 accidental release prevention: No products were found. Clean water act (CAA) 112 regulated flammable substances: No products were found. Clean water act (CAA) 112 regulated toxic substances: No products were found.
State regulations	: Pennsylvania RTK: Methanol. Florida: Methanol. Massachusetts: Ethanol New Jersey: Methanol. California prop. 65: No products were found

EU regulations	
Hazardous symbol(s)	
Classification	: Highly flammable, toxic.
Risk phrases	: R11 – Highly flammable. R23/24/25 – Toxic by inhalation, in contact with skin and if swallowed. R39/23/24/25 – Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
Safety phrases	: S7 – Keep container tightly closed. S16 – Keep away from sources of ignition – No smoking. S36/37 – Wear suitable protective clothing and gloves. S45 – In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
EINECS Number	: 200-659-6.

16 OTHER INFORMATION

National Fire Protection Association (U.S.A.)	
References	: -LOLI Database: The regulated List of Lists. - CHEMINFO: Canadian Centre for Occupational Health and Safety, Issue: 97-3 (August 1997). – BDH; Hazard Data Disk, Version 3. – CESARS: Chemical Evaluation and Retrieval System, Produced by: Ontario Ministry of Environment and Michigan Department of Natural Resources, Issue 97-3 (August 1997). – TOMES Plus System: Toxicology, Occupational Medicine & Environmental Series: incorporating: - MEDITEX, HAZARDTEXT, 1 st Medical Response Protocols, INFOTEXT, HSDB, CHRIS, OHM/TAD, IRIS, NIOSH Pocket Guide, RTECS, NJ Facts Sheets, North American Emergency Response Guides, REPROTEXT, REPROTOX, TERIS, Shepard's Catalog of Teraogenic Agents.
Other special considerations	No additional remarks.
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Version	
Verified by	

Notice to reader:

This MSDS summarizes at the date of issue our best knowledge of the health, safety and environmental hazard information related to the product, and in particular how to safely handle, use and transport the product in the workplace. Since TAG Solvent Products (PTY) LTD. and its subsidiaries cannot anticipate or control the conditions under which the product may be handled, used, stored or transported, each user must, prior to usage, review MSDS in the context of how the user intends to handle, use, store or transport the product in the workplace and beyond, and communicate such information to all relevant parties. If clarification or further information is required to ensure that an appropriate assessment can be made, the user should contact the company.

We shall not assume any liability for the accuracy or completeness of the information contained herein or any advice given unless there has been gross negligence on our part. In such event our liability shall be limited only to direct damages suffered. Our responsibility for the product as

sold is subject to our standards terms and conditions, a copy of which is sent to our customers and is also available upon request. All risk with possession and application of the product passes on delivery.