SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Methanol

Other means of identification

Synonyms: Methyl Alcohol

Product No.: 3004, 3016, 3017, 3041, 3042, 3290, 3292, 5370, 5595, 5842, 6290, 8814, 8818, 8820, 8888, 9049, 9063, 9065, 9066, 9067, 9069, 9070, 9073, 9076, 9077, 9093, 9097, 9098, 9124, 9263, 9423, 9424, 9830, 9863, H080, H488, H603, V184, 10111, 10333, 12210, 22210, 72690

Recommended restrictions

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name:	Avantor Performance Materials, LLC
Address:	100 Matsonford Rd, Suite 200 Radnor, PA 19087
Telephone:	Customer Service: 855-282-6867
Contact Person:	Product Information Compliance
E-mail:	info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Flammable liquids	Category 2

Health Hazards

Acute toxicity (Oral)	Category 3
Acute toxicity (Dermal)	Category 3
Acute toxicity (Inhalation - vapor)	Category 3
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2A
Toxic to reproduction	Category 2
Specific Target Organ Toxicity - Single Exposure	Category 1[1.]

Target Organs

1. Central nervous system, Eyes

Unknown toxicity - Health

Acute toxicity, inhalation, vapor 100 %

Acute toxicity, inhalation, dust or mist	100 %

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement:
Toxic in contact with skin.
Toxic if inhaled.
Toxic if swallowed.
Highly flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
Suspected of damaging fertility or the unborn child.
Causes damage to organs.

Precautionary Statements

Prevention: Obtain special instructions before use. Do not breathe dust/fume/gas/mist/vapors/spray. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof [electrical/ventilating/lighting] equipment. Use non-sparking tools. Take action to prevent static discharges.

Response: IF exposed or concerned: Get medical advice/attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER/doctor.

Storage: Store in a well-ventilated place. Keep cool. Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

3. Composition/information on ingredients

Substances

Chemical Identity	CAS number	Content in percent (%)*
Methyl alcohol	67-56-1	99 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Call a physician or poison control center immediately. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Inhalation: Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen.

Skin Contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Most important symptoms/effects, acute and delayed

Symptoms: Toxic if inhaled. Toxic if swallowed. Toxic in contact with skin. Irritating to eyes, respiratory system and skin.

Hazards: None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: Static charges generated by emptying package in or near flammable vapor may cause flash fire.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media: Avoid water in straight hose stream; will scatter and spread fire.

Specific hazards arising from the chemical: Can be ignited easily and burns vigorously. Vapor from the solvent may accumulate in container headspace resulting in flammability hazard. Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Use water spray to keep fire-exposed containers cool. Fight fire from a protected location. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep unauthorized personnel away. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.

Methods and material for containment and cleaning up: In case of leakage, eliminate all ignition sources. Use non-sparking tools. All equipment used when handling the product must be grounded. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures: Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

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. Take action to prevent static discharges. Use non-sparking tools. Use personal protective equipment as required. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Do not eat, drink or smoke when using the product. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment.

Conditions for safe storage, including any incompatibilities: Keep away from food, drink and animal feeding stuffs. Keep out of reach of children. Keep container tightly closed in a cool, well-ventilated place. Store in a dry place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Methyl alcohol	TWA	200 ppm	US. ACGIH Threshold Limit Values (2011)
	STEL	250 ppm	US. ACGIH Threshold Limit Values (2011)
	SKIN_DES	Can be absorbed through the skin.	US. ACGIH Threshold Limit Values (2011)
	STEL	325 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)

	SKIN_DES	Can be absorbed through the skin.	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	REL	260 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	260 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	260 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	325 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	SKIN_FINAL	Can be absorbed through the skin.	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Methyl alcohol (methanol: Sampling time: End of shift.)	15 mg/l (Urine)	ACGIH BEL (03 2013)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information: Good general ventilation (typically 10 air changes per hour) 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. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

Eye/face protection: Chemical goggles and face shield are recommended.

Skin Protection
Hand Protection: Chemical resistant gloves

Other: Wear suitable protective clothing and gloves.

Respiratory Protection: In case of inadequate ventilation use suitable respirator.

Hygiene measures: Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned. Wash contaminated clothing before reuse.

9. Physical and chemical properties

Appearance

Physical state: Liquid
Form: Liquid
Color: Colorless
Odor: Characteristic
Odor threshold: No data available.
pH: No data available.
Melting point/freezing point: -97.8 °C
Initial boiling point and boiling range: 64 °C (101.3 kPa)
Flash Point: 11 - 12 °C (Closed Cup)
Evaporation rate: No data available.
Flammability (solid, gas): No data available.

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%):	36 %(V)
Flammability limit - lower (%):	6 %(V)
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	16.9 kPa (25 °C)
Vapor density:	1.11 (Air = 1)
Density:	0.8 g/ml (25 °C)
Relative density:	0.7866 (25 °C)
Solubility(ies)	
Solubility in water:	1,000 g/l
Solubility (other):	ether: Miscible acetone: Soluble benzene: Miscible chloroform: Soluble Ethanol.: Miscible
Partition coefficient (n-octanol/water):	-0.77
Auto-ignition temperature:	240 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.

Other information

Liquid conductivity:	0.45 µS/cm
Molecular weight:	32.04 g/mol (CH4O)

10. Stability and reactivity

Reactivity:	Contact with metals may evolve flammable hydrogen gas.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Heat, sparks, flames. Sunlight.
Incompatible Materials:	Oxidizing agents. Strong oxidizing agents. Acids.
Hazardous Decomposition Products:	Thermal decomposition may release oxides of carbon. Formaldehyde.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	Toxic by inhalation.
Skin Contact:	Toxic in contact with skin.
Eye contact:	Causes serious eye irritation.
Ingestion:	Toxic if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: LD 50 (Rat): 5,628 mg/kg

Dermal
Product: LD 50 (Rabbit) 15,800 mg/kg

Inhalation
Product: LC 50 (Rat, 1 h) > 145000 ppm
LC 50 (Rat, 4 h): 64000 ppm

Repeated dose toxicity
Product: In serious cases absorption of methanol in the body may lead to damage to the eyesight.

Skin Corrosion/Irritation
Product: Causes skin irritation.

Serious Eye Damage/Eye Irritation
Product: Causes eye irritation.

Respiratory or Skin Sensitization
Product: Not a skin sensitizer.

Carcinogenicity
Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):
No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure
Product: Central nervous system. Eyes.

Specific Target Organ Toxicity - Repeated Exposure
Product: None known.

Target Organs
Specific Target Organ Toxicity - Single Exposure: Central nervous system, Eyes

Aspiration Hazard
Product: No data available.

Specified substance(s):
Methyl alcohol Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: LC 50 (Fathead minnow (Pimephales promelas), 96 h): > 100 mg/l

Aquatic Invertebrates
Product: EC 50 (Water flea (Daphnia magna), 48 h): > 10,000 mg/l

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: Expected to be readily biodegradable.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: May accumulate in soil and water systems.

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: -0.77

Mobility in soil: No data available.

Other adverse effects: The product components are 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.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN Number:	UN 1230
UN Proper Shipping Name:	Methanol
Transport Hazard Class(es)	
Class:	3
Label(s):	3
Packing Group:	II
Marine Pollutant:	No
Special precautions for user:	Not determined.

IMDG

UN Number:	UN 1230
UN Proper Shipping Name:	METHANOL
Transport Hazard Class(es)	
Class:	3
Label(s):	3, 6.1
EmS No.:	F-E, S-D
Packing Group:	II
Marine Pollutant:	No
Special precautions for user:	Not determined.

IATA

UN Number:	UN 1230
Proper Shipping Name:	Methanol
Transport Hazard Class(es):	
Class:	3
Label(s):	3, 6.1
Packing Group:	II
Marine Pollutant:	No
Special precautions for user:	Not determined.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Identity	Reportable quantity
Methyl alcohol	5000 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Flammable liquids
Acute toxicity
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation
Toxic to reproduction
Specific Target Organ Toxicity - Single Exposure

Static-accumulating flammable liquid

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

Chemical Identity	Reportable quantity
Methyl alcohol	5000 lbs.

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
Methyl alcohol	10000 lbs.

SARA 313 (TRI Reporting)

Chemical Identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
Methyl alcohol	10000 lbs.	25000 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

Methyl alcohol	Developmental toxin. WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity
Methyl alcohol

US. Massachusetts RTK - Substance List

Chemical Identity
Methyl alcohol

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity
Methyl alcohol

US. Rhode Island RTK

Chemical Identity
Methyl alcohol

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

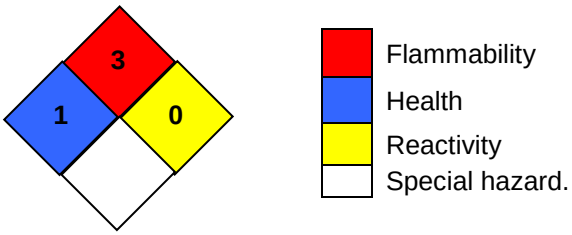
Kyoto protocol
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory

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

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date:	10-15-2018
Revision Information:	Not relevant.
Version #:	1.8
Source of information:	Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.
Further Information:	No data available.

Disclaimer:

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