CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

SAFETY DATA SHEET

METHYL ALCOHOL

1. IDENTIFICATION

Product identifier: METHYL ALCOHOL, REAGENT (ACS)

Product Code Number: 1501

Company Identification:

Corco Chemical Corporation
299 Cedar Lane
Fairless Hills, PA 19030
Phone: 215-295-5006
Fax: 215-295-0781

24 Hour Emergency Telephone Number:

CHEMTREC (U.S.): 1-800-424-9300
CHEMTREC (Outside U.S. 1-703-527-3887

Trade Name:	Methyl Alcohol, Reagent ACS
Synonyms:	Wood Alcohol; Methanol; Carbinol
Chemical Formula:	CH3OH
Product use:	Process chemical, Laboratory and scientific research and development

2. HAZARD(S) IDENTIFICATION

Physical hazards:	Flammable liquids	Category 2
Health hazards:	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 3
	Serious eye damage/eye irritation	Category 2A
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 1
	Specific target organ toxicity, single exposure	Category 3 narcotic effect
	Specific target organ toxicity, single exposure	Category 3 narcotic
	Specific target organ toxicity, repeated exposure	Category 1 (central nervous system, visual organs)

OSHA hazard(s): Not classified.

Label Elements:

Signal word **Danger**

Hazard statement: Highly flammable liquid and vapor. Toxic if swallowed. Toxic in contact with skin. Causes serious eye irritation. Toxic if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. May damage fertility or the unborn child. Causes damage to organs. Causes damage to organs (central nervous system, visual organs) through prolonged or repeated exposure.

Precautionary statement: Keep away from heat/sparks/open flames/hot surfaces.

Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. a. Use non-sparking tools and explosion-proof equipment. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting equipment. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

Response: Eliminate all ignition sources if safe to do so. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do, Continue rinsing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. Rinse mouth. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media for extinction.

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

Disposal Dispose of contents/container to an approved incineration plant.

3. Composition/information on ingredients

CAS Number: 67-56-1
EC Number: 200-659-6
Index Number: 603-001-00-X
Molecular Weight: 32.04 g/mol

Ingredient	CAS Number	EC Number	Percent	Hazardous Chemical	Characterization
Methyl Alcohol	67-56-1	200-659-6	100%	Yes	Substance

4. First-aid measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. Get medical attention immediately.

Ingestion: DO NOT INDUCE VOMITING unless directed by a physician! Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire-fighting measures

Fire: Flammable Liquid and Vapor! Flash point: 12C (54F) CC / Auto ignition temperature: 464C (867F)

Flammable limits in air % by volume: lel: 6.0; uel: 36

Explosion: Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Moderate explosion hazard and dangerous fire hazard when exposed to heat, sparks or flames. Sensitive to static discharge.

Fire Extinguishing Media: Use Alcohol foam, dry chemical or Carbon Dioxide. Water may be ineffective.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire. Vapors can flow along surfaces to distant ignition source and flash back.

Specific methods: In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use standard firefighting procedures and consider the hazards of other involved materials. Move container from fire area if it can be done without risk.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth,) and place in a chemical waste

container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and storage

Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Vapors may form explosive mixtures with air. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the accumulation of static charges include but are not limited to: American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code". DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Avoid contact with eyes. Avoid contact during pregnancy/while nursing. Use personal protective equipment as required. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute.

8. Exposure controls/personal protection

Airborne Exposure Limits:
OSHA Permissible Exposure Limit (PEL): 200 ppm (TWA)
ACGIH Threshold Limit Value (TLV): 200 ppm (TWA), 250 ppm (STEL) skin
Ventilation System: A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Use explosion-proof equipment. Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full face piece respirator, air-lined hood, or full face piece, self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). This substance has poor warning properties. Skin Protection: Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure. Eye Protection: Use chemical safety goggles and / or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area. When using, do not eat, drink or smoke. Do not get in eyes. Avoid contact with skin. Avoid contact with clothing. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Clear.
Physical state	Liquid.
Form	Liquid.
Color	Colorless.
Odor	Slight.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	-144 °F (-97.8 °C)
Initial boiling point and boiling range	148.46 °F (64.7 °C) 101.325 kPa
Flash point 53.60 °F (12.00 °C) Closed Cup	Evaporation rate Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit – lower	7.3 (%)
Flammability limit - upper	36 (%)
Explosive limit – lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapor pressure	16.93 kPa at 25 °C
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Miscible
Partition coefficient (n-octanol/water)	-0.8
Auto-ignition temperature	464 °F (240 °C)
Decomposition temperature	When heated to decomp, emits acrid smoke and irritating fumes
Other information:	
Density	0.79 g/cm3 estimated
Dynamic viscosity	0.614 mPa.s
Flammability class	Flammable IB estimated

Flash point class	Flammable IB
Heat of combustion	NFPA 30B) 19 kJ/g
Molecular formula	C-H4-O
Molecular weight	32.04 g/mol
Percent volatile	100 %
Specific gravity	0.7866 at 25 °C
VOC (Weight %)	100 %
Viscosity	Not available.

10. Stability and reactivity

Reactivity	Strong oxidizing substances.
Chemical stability Risk of explosion. conditions.	Material is stable under normal
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Hazardous polymerization	does not occur.
Conditions to avoid	Heat, flames and sparks. Avoid temperatures exceeding the flash point.
Incompatible materials	Strong oxidizing agents.
Hazardous decompositionproducts	Irritants. May include oxides of carbon.

11. Toxicological information

Emergency Overview: POISON! DANGER! VAPOR HARMFUL. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CANNOT BE MADE NONPOISONOUS. FLAMMABLE LIQUID AND VAPOR. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM AND LIVER.

Potential Health Effects:

Inhalation: A slight irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Once absorbed into the body, it is very slowly eliminated. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. A person may get better but then worse again up to 30 hours later.

Ingestion: Toxic. Symptoms parallel inhalation. Can intoxicate and cause blindness. Usual fatal dose: 100-125 milliliters.

Skin Contact: Methyl Alcohol is a defatting agent and may cause skin to become dry and cracked. Skin absorption can occur; symptoms may parallel inhalation exposure.

Eye Contact: Irritant. Continued exposure may cause eye lesions.
Chronic Exposure: Marked impairment of vision has been reported. Repeated or prolonged exposure may cause skin irritation.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) Causes damage to organs.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.
Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) Causes damage to organs.
Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
Methyl Alcohol (67-56-1)	No	No	None

Acute Toxicity:

Oral rat LD50: 5628 mg/kg; inhalation rat LC50: 64000 ppm/4H; skin rabbit LD50: 15800 mg/kg; Irritation data-standard Draize test: skin, rabbit: 20mg/24 hr. Moderate; eye, rabbit: 100 mg/24 hr. Moderate. Investigated as a mutagen, reproductive effecter.

12. Ecological information

Ecotoxicity: This material is expected to be slightly toxic to aquatic life.
Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 19,000.00 mg/l - 96 h / mortality LC50 - Lepomis macrochirus (Bluegill) - 15,400 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates - EC50 - Daphnia magna (Water flea) - 24,500.00 mg/l - 48 h / EC100 - Daphnia magna (Water flea) - 10,000.00 mg/l - 24 h Toxicity to algae Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 22,000 mg/l - 96 h

Persistence and Degradability: When released into the soil, this material is expected to readily biodegrade. When released into water, this material is expected to readily biodegrade. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

Bioaccumulative Potential:

Bioaccumulation Cyprinus carpio (Carp) - 72 d at 20C
Bioconcentration factor (BCF): 1.0
Mobility in Soil: When released into the soil, this material is expected to quickly evaporate. When released into the soil, this material is expected to leach into groundwater.

Other adverse effects: When released into the water, this material is expected to have a half-life between 1 and 10 days. When released into the air, this material is expected to exist in the aerosol phase with a short half-life. When released into air, this material is expected to have a half-life between 10 and 30 days. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition.

13. Disposal considerations

Disposal instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F.

Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transportation Information

UN Number: UN1230
UN Proper Shipping Name: METHANOL
Packing Group: II

DOT

IMDG / IATA

Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)
Transport Hazard Class(es): 3

Maritime Transport IMDG/GGVSea Transport Hazard Class(es): 3, 6.1

Marine Pollutant: No

Air Transport ICAO-TI and IATA-DGR Transport Hazard Class(es): 3, 6.1

Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory information

US federal regulations: All components are on the U.S. EPA TSCA Inventory List. This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not on regulatory list.
CERCLA Hazardous Substance List (40 CFR 302.4)
METHYL ALCOHOL (CAS 67-56-1) LISTED
Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No
SARA 302 Extremelyhazardous substance - No

SARA 311/312 Hazardous chemical – No

Other federal regulations:

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
METHYL ALCOHOL (CAS 67-56-1)
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Safe Drinking Water Act (SDWA)
Contaminate candidate list
Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number
Not listed.
Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
Not regulated.
DEA Exempt Chemical Mixtures Code Number
Not regulated.
Food and Drug Administration (FDA)
Not regulated.
US state regulations WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

U.S. Massachusetts RTK - Substance List
METHYL ALCOHOL (CAS 67-56-1)
US. New Jersey Worker and Community Right-to-Know Act
METHYL ALCOHOL (CAS 67-56-1) 500 LBS
US. Pennsylvania RTK - Hazardous Substances
METHYL ALCOHOL (CAS 67-56-1)
US. Rhode Island RTK
METHYL ALCOHOL (CAS 67-56-1)
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
METHYL ALCOHOL (CAS 67-56-1)

International Inventories:

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

16. Other information

Disclaimer - The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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