

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Methanol**

Product Code: Methanol

Synonyms: Wood alcohol; methyl alcohol; carbinol

CAS Number: 67-56-1

Company Identification: **NuGeneration Technologies, LLC**

www.nugentec.com/biotech

100 Professional Center Drive

Rohnert Park, CA 94928

1-707-820-4080 (For product information) 1-800-424-9300 (For emergencies - CHEMTREC)

2. COMPOSITION / INFORMATION ON INGREDIENTS

CONTAINING: HAZARDOUS AND/OR REGULATED COMPONENTS

<u>Chemical Name</u>	<u>Amount</u>	<u>CAS Number</u>	<u>Hazardous</u>	<u>OSHA PEL (ppm)</u>	<u>ACGIH TLV (ppm)</u>
Methanol	100%	67-56-1	YES	200	200

California Prop 65: This product does NOT contain an ingredient(s), above the safe harbor limits, which are known to the state of California to cause cancer, birth defects, or other reproductive harm.

HAZARDS DISCLOSURE: This product contains known hazardous materials in reportable levels as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200 except as listed above. As defined under Sara 311 and 312, this product contains known hazardous materials.

3. HAZARDS IDENTIFICATION

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.



Hazardous Material Information System (HMIS):	Health	2
	Flammability	3
	Reactivity	0
	Personal Protection	H

National Fire Protection Association (NFPA):

NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

Protective Equipment: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER.

POTENTIAL HEALTH EFFECTS**ROUTES OF ENTRY:** Skin contact. Eye contact. Inhalation. Ingestion.**TARGET ORGANS:** The substance is toxic to eyes. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.**INHALATION:** Inhalation of vapors irritates the respiratory tract. Exposure to high concentrations has a narcotic effect, producing symptoms of dizziness, drowsiness, headache, staggering, unconsciousness and possibly death.**INGESTION:** Can cause drowsiness, unconsciousness, and death. Gastrointestinal pain, cramps, nausea, vomiting, and diarrhea may also result. The single lethal dose for a human adult = about 250ml (8-ounces).**SKIN CONTACT:** May cause irritation with redness and pain. May be absorbed through the skin with possible systemic effects.**EYE CONTACT:** Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage.**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.**4. FIRST AID MEASURES****INHALATION FIRST AID:** If a respiratory problem develops from vapors. Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.**SKIN CONTACT FIRST AID:** Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.**EYE CONTACT FIRST AID:** If contact with eyes, immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.**INGESTION FIRST AID:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.**STATEMENT OF PRACTICAL TREATMENT:** Always have plenty of water available for first aid. Get medical attention if any symptoms develop or persist.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: EXTREMELY FLAMMABLE LIQUID and VAPOR!

AUTO IGNITION TEMPERATURE: 464 °C (867 °F)

FLASH POINT: 12 °C (54 °F) CC

FLAMMABLE LIMITS IN AIR, % by Volume: lel: 6.0; uel: 36.0

EXTINGUISHING MEDIA: Carbon dioxide, alcohol foam, dry chemical extinguishers. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors. PLEASE NOTE: 10% of METHANOL in water has a flash point below 41 deg. °C (105 °F).

6. ACCIDENTAL RELEASE MEASURES

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. 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. Follow applicable OSHA regulations (29 CFR 1910.120).

7. HANDLING AND STORAGE

RECOMMENDED STORAGE CONDITIONS: Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Protect storage area from exposure to external fires. After this container has been emptied, it may contain explosive vapors; observe all warnings and precautions listed for the product. Do not cut, or weld on or near this container. Protect storage area and processing vessels from high energy projectiles by a suitable barricade. Separate from flammables and sensitizers. Do not reuse or dispose of empty containers until they have been rinsed with water. DO NOT enter confined spaces until atmosphere has been checked.

SHELF LIFE: See Label on packaging.

HANDLING (PERSONNEL): Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, bare lights, heat or ignition sources. When handling, DO NOT eat, drink or smoke. Vapor may ignite on pumping or pouring due to static electricity. DO NOT use plastic buckets. Ground and secure metal containers when dispensing or pouring product. Use spark-free tools when handling. Avoid contact with incompatible materials. Keep containers securely sealed. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practices. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS: See Section 2 above.

METHANOL:

-OSHA Permissible Exposure Limit (PEL): 200 ppm (TWA)

-ACGIH Threshold Limit Value (TLV):

200 ppm (TWA), 250 ppm (STEL)

VENTILATION SYSTEM: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

PERSONAL RESPIRATORS (NIOSH APPROVED): If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airtight hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See 29CFR1910.134 for details.

RESPIRATORY PROTECTION: For unknown vapor concentrations use a positive-pressure, pressure-demand, self-contained breathing apparatus (SCBA). For known vapor concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

SKIN PROTECTION: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Barrier cream with polyethylene gloves or Butyl rubber gloves or Neoprene rubber gloves. Safety footwear. Butyl and Neoprene Gloves for best protection.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: liquid.

COLOR: Clear / colorless

ODOR: alcohol

BOILING POINT: 65°C (147°F) @ 760 mm Hg

SOLUBILITY IN WATER: miscible

SPECIFIC GRAVITY: 0.792 at 20 °C (Water =1)

MELTING/FREEZING POINT: -98°C (-144°F)

Evaporation Rate (BuAc=1): 5.9

AUTO IGNITION TEMPERATURE: 464°C (867°F)

FLASH POINT: 12 °C (54 °F) CC

pH: N/A

VAPOR PRESSURE: 97 @ 20C (68F)

% VOLATILES BY VOLUME @ 21C (70F): 100

VAPOR DENSITY: 1.1 (air = 1)

Molecular weight: 32.04 g/mole

Molecular Formula: CH₃OH

10. STABILITY AND REACTIVITY

STABILITY: Stable under ordinary conditions of use and storage.

CONDITIONS TO AVOID: Heat, flames, ignition sources and incompatibles.

POLYMERIZATION: Hazardous polymerization will not occur.

INCOMPATIBILITY WITH OTHER MATERIALS: Strong oxidizing agents such as nitrates, perchlorates or sulfuric acid. Will attack some forms of plastics, rubber, and coatings. May react with metallic aluminum and generate hydrogen gas.

DECOMPOSITION: May form carbon dioxide, carbon monoxide, and formaldehyde when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Methyl Alcohol (Methanol) 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 effector.

Cancer Lists

---NTP Carcinogen---

Ingredient

Known

Anticipated

IARC Category

METHANOL (67-56-1)

No

No

None

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE: When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into the water, this material is expected to have a half-life between 1 and 10 days. When released into water, this material is expected to readily biodegrade. When released into the air, this material is expected to exist in the aerosol phase with a short half-life. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. 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.

ENVIRONMENTAL TOXICITY: This material is expected to be slightly toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Whatever cannot be saved for recovery or recycling should be handled as a non hazardous waste and sent to an approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of material in accordance with federal, state and local requirements.

CONTAMINATED MATERIALS: Wash contaminated clothing before reuse.

14. TRANSPORTATION INFORMATION

Domestic (Land, D.O.T.), International (Water, I.M.O.), International (Air, I.C.A.O.)

CLASS: 3 – Flammable Liquid
 PRODUCT LABEL: METHANOL
 UN NUMBER: 1230
 PACKING GROUP: II – Medium Danger
 D.O.T. SHIPPING NAME: ISOPROPANOL - Flammable Liquids, N.O.S.
 PRODUCT RQ (LBS): N/A
 ERG Guide Number: N/A
 SUPPLEMENTAL HAZARD: N/A
 Vessel Stowage: Location: B



15. REGULATORY INFORMATION

FEDERAL REGULATORY STATUS

Chemical Inventory Status - Part 1

Ingredient	<u>TSCA</u>	<u>EC</u>	<u>Japan</u>	<u>Australia</u>
Methanol	YES	YES	YES	YES

Chemical Inventory Status - Part 2

Ingredient	<u>Korea</u>	<u>DSL</u>	<u>CANADA</u>	<u>Phil.</u>
Methanol	YES	YES	<u>NDSL</u> NO	YES

Federal, State & International Regulations - Part 1

Ingredient	<u>-SARA 302-</u>	<u>TPQ</u>	<u>List</u>	<u>-SARA 313-</u>
Methanol	<u>RQ</u> NO	NO	YES	<u>Chemical Catalog</u> NO

Federal, State & International Regulations - Part 2

Ingredient	<u>CERCLA</u>	<u>-RCRA-</u>	<u>-TSCA-</u>
Methanol	5000	<u>261.33</u> U154	<u>8(d)</u> NO

Chemical Weapons Convention: No **TSCA 12(b):** No **CDTA:** No

Clean Water Act (CWA) 307: No products were found.
 Clean Water Act (CWA) 311: No products were found.
 Clean Air Act (CAA) 112 accidental release prevention: No products were found.
 Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
 Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
 Reactivity: No (Pure / Liquid)

STATE REGULATIONS:

Pennsylvania RTK: METHANOL
 New Jersey: METHANOL

PROP 65 - WARNING: NONE

THIS PRODUCT DOES NOT CONTAIN A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

RCRA 40 CFR: Listed U002 Ignitable Waste.

Australian Hazchem Code: 2PE

Poison Schedule: S6.

WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA). This material or all of its components are listed on the Canadian Domestic Substances List (DSL). This material or all of its components are listed (or considered as having been notified) on the European Inventory of Existing Chemical Substances (EINECS). Other inventory lists:, Korea (TCCL), Australia (AICS), China (Draft), PICCS (Philippines-RA6969), Japan (ENCS METI/MOL).

16. OTHER INFORMATION

Label Requirements: 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.

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Approved By: NuGeneration Technologies, LLC, Environmental Health and Safety Department
Approval Date: October 21, 2009

Part Number: METHANOL
Supersedes Date: 06/06/2007

ADDITIONAL INFORMATION:

The data in this Material Safety Data Sheet relates only to the specific material designated herein. It does not relate to use in combination with any other material or in any process. This Material Safety Data Sheet (MSDS) has been reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-2004)

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END OF MSDS