Material Safety Data Sheet

Methanol, OmniSolv ®

1 . Product and company identification

Product name	:	Methanol, OmniSolv ®
Product code	:	MX0488
Supplier	:	EMD Millipore Corp. 290 Concord Rd. Billerica, MA 01821 1-978-715-1335 Technical Service Monday - Friday: 8:00 - 6:00 PM EST
Synonym	:	Methyl Alcohol
Material uses	:	Other non-specified industry: Analytical reagent.
Validation date	:	6/8/2012.
In case of emergency	:	800-424-9300 CHEMTREC (USA) 613-996-6666 CANUTEC (Canada) 24 Hours/Day: 7 Days/Week

2 . Hazards identification

Emergency overview :

DANGER!
POISON!

FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
VAPOR HARMFUL.
MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED.
CANNOT BE MADE NONPOISONOUS.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
HARMFUL IF INHALED OR ABSORBED THROUGH SKIN.
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, EYES, CENTRAL NERVOUS SYSTEM.

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

Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Physical state	:	Liquid. [Colorless.]
OSHA/HCS status	:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Routes of entry	:	Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation	:	Toxic by inhalation. Irritating to respiratory system.
Ingestion	:	Very toxic if swallowed.
Skin	:	Toxic in contact with skin. Irritating to skin.
Eyes	:	Irritating to eyes.

Potential chronic health effects

Carcinogenicity	:	No known significant effects or critical hazards.
Mutagenicity	:	Laboratory experiments have shown mutagenic effects.
Teratogenicity	:	May cause teratogenic effects, based on animal data.
Developmental effects	:	May cause developmental abnormalities, based on animal data.
Fertility effects	:	No known significant effects or critical hazards.
Target organs	:	May cause damage to the following organs: gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

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2 . Hazards identification

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3 . Composition/information on ingredients

Name	CAS number	% by weight
Methanol	67-56-1	100

4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. 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. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5 . Fire-fighting measures

Flammability of the product : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Dangerous fire and explosion risk. Container explosion may occur under fire conditions or when heated. Vapor may travel a considerable distance to source of ignition and flash back.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

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6 . Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

7 . Handling and storage

Handling : Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container, protected from direct sunlight. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Methanol	**ACGIH TLV (United States, 2/2010). Absorbed through skin.** TWA: 200 ppm 8 hour(s). TWA: 262 mg/m³ 8 hour(s). STEL: 250 ppm 15 minute(s). STEL: 328 mg/m³ 15 minute(s). **OSHA PEL 1989 (United States, 3/1989). Absorbed through skin.** TWA: 200 ppm 8 hour(s). TWA: 260 mg/m³ 8 hour(s). STEL: 250 ppm 15 minute(s). STEL: 325 mg/m³ 15 minute(s). **NIOSH REL (United States, 6/2009). Absorbed through skin.** TWA: 200 ppm 10 hour(s). TWA: 260 mg/m³ 10 hour(s). STEL: 250 ppm 15 minute(s). STEL: 325 mg/m³ 15 minute(s). **OSHA PEL (United States, 11/2006).** TWA: 200 ppm 8 hour(s). TWA: 260 mg/m³ 8 hour(s).

Consult local authorities for acceptable exposure limits.

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8 . Exposure controls/personal protection

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: neoprene

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: safety glasses with side-shields

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: lab coat

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Liquid. [Colorless.]

Flash point : Closed cup: 12°C (53.6°F)
Open cup: 15.85°C (60.5°F)

Auto-ignition temperature : 464°C (867.2°F)

Flammable limits : Lower: 6%
Upper: 36.5%

Color : Clear. Colorless.

Odor : Characteristic. Alcohol-like.

Molecular weight : 32.05 g/mole

Molecular formula : C-H4-O

pH : Not available.

Boiling/condensation point : 64.5°C (148.1°F)

Melting/freezing point : -97.8°C (-144°F)

Relative density : 0.792

Vapor pressure : 12.9 kPa (97 mm Hg) [20°C]

Vapor density : 1.11 [Air = 1]

Volatility : 99.9% (v/v)

Odor threshold : 100 ppm

Evaporation rate : 2.1 (butyl acetate = 1)

VOC : 100 % (w/w)

Solubility : Soluble in the following materials: water

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10 . Stability and reactivity

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Materials to avoid : Highly reactive or incompatible with the following materials: oxidizing materials. Reactive or incompatible with the following materials: metals and acids.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Conditions of reactivity : Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
Dangerous fire and explosion risk. Container explosion may occur under fire conditions or when heated. Vapor may travel a considerable distance to source of ignition and flash back.

Highly explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Test	Route	Species	Result
Methanol	LD50	Dermal	Rabbit	15800 mg/kg
	LD50	Intraperitoneal	Rat	7529 mg/kg
	LD50	Intravenous	Rat	2131 mg/kg
	LD50	Oral	Rabbit	14200 mg/kg
	LD50	Oral	Rat	5628 mg/kg
	LD50	Oral	Rat	5600 mg/kg
	LDLo	Oral	Human	143 mg/kg
	TDLo	Intraperitoneal	Rat	3490 mg/kg
	TDLo	Intraperitoneal	Rat	3000 mg/kg
	TDLo	Oral	Rat	8 g/kg
	TDLo	Oral	Rat	3 g/kg
	TDLo	Oral	Rat	3500 mg/kg
	LC50	Inhalation Gas.	Rat	145000 ppm
	LC50	Inhalation Vapor	Rat	64000 ppm
	LC50	Inhalation Gas.	Rat	64000 ppm
	LC50	Inhalation Gas.	Rat	64000 ppm

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Observation
Methanol	Eyes - Moderate irritant	Rabbit	-	-
	Skin - Moderate irritant	Rabbit	-	-

Carcinogenicity

No known significant effects or critical hazards.

Mutagenicity

Laboratory experiments have shown mutagenic effects.

Teratogenicity

Continued on next page

11 . Toxicological information

May cause teratogenic effects, based on animal data.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Methanol	Acute EC50 22200 to 23400 mg/L Fresh water	Daphnia - Water flea - Daphnia obtusa - Neonate - <24 hours	48 hours
	Acute EC50 16000 mg/L	Fish	48 hours
	Acute EC50 13200 mg/L	Fish	48 hours
	Acute EC50 >10000 mg/L	Daphnia	48 hours
	Acute EC50 24500000 to 29350000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - LARVAE - <24 hours	48 hours
	Acute EC50 13000000 to 13400000 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - Juvenile (Fledgling, Hatchling, Weanling) - 0.813 g	96 hours
	Acute EC50 12700000 to 13700000 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling) - 3.07 g	96 hours
	Acute EC50 >10000000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - 6 to 24 hours	48 hours
	Acute LC50 15400 mg/L	Fish	96 hours
	Acute LC50 3289 to 4395 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 >1000 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 6 months - 40 mm - 0.81 g	96 hours
	Acute LC50 290 mg/L Fresh water	Fish - Zebra danio - Danio rerio - Egg	96 hours
	Acute LC50 >100 mg/L	Daphnia	96 hours
	Acute LC50 >100 mg/L	Fish	96 hours
	Acute LC50 10000000 to 33000000 ug/L Marine water	Fish - Hooknose - Agonus cataphractus - Adult	96 hours
	Acute LC50 2500000 ug/L Marine water	Crustaceans - Common shrimp, sand shrimp - Crangon crangon - Adult	48 hours
	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 0.2 to 0.5 g	96 hours

Environmental effects : No known significant effects or critical hazards.

Other adverse effects : No known significant effects or critical hazards.

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13 . Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1230	METHANOL	3	II		**Reportable quantity** 5000 lbs. (2270 kg)

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Flammable liquid
Highly toxic material
Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b):**

TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Methanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Methanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

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 toxic substances: No products were found.

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements :	Methanol	67-56-1	100
Supplier notification :	Methanol	67-56-1	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Massachusetts Substances : This material is listed.

New Jersey Hazardous Substances : This material is listed.

New York Acutely Hazardous Substances : This material is listed.

Pennsylvania RTK Hazardous Substances : This material is listed.

Continued on next page

15 . Regulatory information

California Prop. 65

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

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Methanol	No.	Yes.	No.	No.

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists : **CEPA Toxic substances**: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

CEPA DSL / CEPA NDSL : This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

EU regulations

Hazard symbol or symbols :

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.

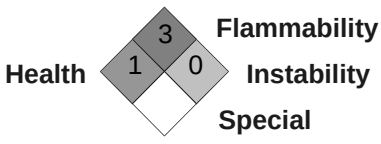
Safety phrases : S1/2- Keep locked up and out of the reach of children.
S7- Keep container tightly closed.
S16- Keep away from sources of ignition - No smoking.
S36/37- Wear suitable protective clothing and gloves.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.

16 . Other information

National Fire Protection Association (U.S.A.) :



Notice to reader

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16 . Other information

The statements contained herein are based upon technical data that EMD Millipore Corp. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD MILLIPORE CORP. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.