



Date of issue: 12 Dec., 2011
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SAFETY DATA SHEET

1. Chemical product and company identification

Name of chemicals(Trade name) : MMB
Reference no. : KIM-019e
Company/undertaking identification : Kuraray Co., Ltd.
Address : Ote Center Building, 1-1-3, Otemachi, Chiyoda-ku, Tokyo 100-8115, Japan
Department name : Chemicals Marketing and Sales Department, Isoprene Chemicals Division
Tel. : +81-3-6701-1628
Fax : +81-3-6701-1646
E-mail : Msds.Qm-ps@kuraray.com
Emergency contact number : Chemicals Marketing and Sales Department, Isoprene Chemicals Division
+81-3-6701-1628

Recommended use of the chemical and restrictions on use

Recommended uses and restrictions : Production of chemicals, Industrial use

2. Hazards identification

GHS classification

Physical hazards : Flammable liquids, Category 4
Health hazards : Acute toxicity (oral) Not classified
: Acute toxicity (dermal) Not classified
: Skin corrosion/irritation Not classified
: Serious eye damage/eye irritation, Category 2B
: Skin sensitisation Not classified
: Reproductive toxicity Not classified
Environmental hazards : Hazardous to the aquatic environment - Acute Hazard Not classified
: Hazardous to the aquatic environment - Chronic Hazard Not classified
Other hazards than mentioned above are Not applicable or No data available.
Signal word (GHS) : Warning
Hazard statements (GHS) : Combustible liquid (H227)
Causes eye irritation (H320)
Prevention precautionary statements : Keep away from heat/sparks/open flames/hot surfaces. - No smoking (P210)
Wash hands, forearms and face thoroughly after handling (P264)
Wear protective gloves/protective clothing/eye protection/face protection (P280)
Response Precautionary Statements : If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing (P305+P351+P338)
If eye irritation persists: Get medical advice/attention (P337+P313)
In case of fire: Use Alcohol-resistant foam to extinguish

(P370+P378)

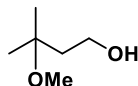
Storage precautionary statements : Store in a well-ventilated place. Keep cool (P403+P235)
Disposal precautionary statements : Dispose of contents/container to Regional legislation (waste) (P501)

3. Composition/information on ingredients

Distinction of substance or mixture : Single product
Chemical name : 3-Methoxy-3-methyl-1-butanol

Name	Concentration	Formula	Kanpo number		CAS No
			CSCL no	ISHL no	
3-Methoxy-3-methyl-1-butanol	>= 98%	C6H14O2	2-3079	An existing chemical substance without serial number.	56539-66-3

Structure of 3-Methoxy-3-methyl-1-butanol



4. First aid measures

First aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing.
Turn victim's head towards side, if victim is breathing and vomiting.
If you feel unwell, seek medical advice.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
Get medical advice/attention.

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
Get medical advice/attention.

First-aid measures after ingestion : If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.
Never give anything by mouth to an unconscious person or a person with cramps.
Keep at rest.

Personal Protection in First Aid and Measures : First aider: Pay attention to self-protection!.

5. Fire fighting measures

Suitable extinguishing media : Alcohol resistant foam, Dry extinguishing powder, Carbon dioxide, Dry sand

Unsuitable extinguishing media : Must not use water directly for fire extinguishing. Atomized water can be used for the cooling.

Firefighting instructions : In case of fire: stop leak if safe to do so.
Fight fire remotely due to the risk of explosion.
Use water spray or fog for cooling exposed containers.
Evacuate area.

Prevent fire fighting water from entering the environment.
Protection during firefighting : Do not attempt to take action without suitable protective equipment.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear personal protective equipment
Remove persons to safety.
Provide adequate ventilation.
Isolate from fire, if possible, without unnecessary risk.
Use special care to avoid static electric charges.

Environmental precautions

Environmental precautions : Prevent spread over a wide area (e.g. by containment or oil barriers).
Do not allow to enter into surface water or drains.

Methods and Equipment for Containment and Cleaning up

For containment : Collect spillage.
Collect in closed containers for disposal.
Methods for cleaning up : This material and its container must be disposed of in a safe way, and as per local legislation.
Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.
Prevention Measures for Secondary Accidents ; Except what will become an ignition source, prepare fire extinguishing media.
(Prohibition of smoking, sparks and flames in the vicinity.)

7. Handling and storage

Handling

Technical measures : If handled uncovered, arrangements with local exhaust ventilation have to be used.
If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.
provide eye wash and label its location conspicuously.
Use only antistatically equipped (spark-free) tools.
Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
Prevents handling of incompatible substances or mixtures : Oxidising agent. Reducing agent. Strong acid. Alkalis.
Local and general ventilation : Work in well-ventilated zones or use proper respiratory protection.
Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapour.
Use personal protective equipment as required.
Do not handle rough handling such as overturning, dropping, shocking or pulling a container.
Do not handle until all safety precautions have been read and understood.
Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Contaminated work clothing should not be allowed out of the

workplace.

Wash contaminated clothing before reuse.

Storage precautionary statements

Storage conditions : Protect from sunlight. Store in a well-ventilated place.
Store in a place accessible by authorized persons only.
Keep locked up.

Keep container closed when not in use.

Ensure adequate ventilation of the storage area.

Keep in fireproof place.

Keep cool.

Technical measures : Use only non-sparking tools.

Prevent cargo collapse and fall.

If local exhaust ventilation is not possible or not sufficient,
the entire working area must be ventilated by technical means.

provide eye wash and label its location conspicuously.

Comply with applicable regulations.

Incompatible products : Alkalis. Strong bases. Strong acids. Oxidizing agent.

Storage area : Store in a well-ventilated place.

8. Exposure controls / Personal protection equipment

Appropriate engineering controls : Devices with local exhaust.
provide sufficient washing facilities.

Protective equipment

Respiratory protection : In case of inadequate ventilation wear respiratory protection
Gas mask (for organic gas), air-supplied respirator, air
respirators, oxygen respirator.

Hand protection : protective gloves.

For special purposes, it is recommended to check the resistance to
chemicals of the protective gloves mentioned above together with
the supplier of these gloves.

Eye protection : Framed glasses.

Chemical goggles or face shield.

Skin and body protection : protective clothing: Lab coat, Lab apron, Chemical resistant suit
Safety shoes.

9. Physical and chemical properties

Physical state : Liquid
Colour : Colorless clear
Melting point : < -50 °C
Boiling point : 173 °C
Flash point : 71 °C (OECD103) ¹⁾
Relative evaporation rate : No data available
(butylacetate=1)
Explosive limits (vol %) : Lower:1.2 vol% Upper : 13.1 vol%
Vapour pressure : 0.47 hPa (20 °C) ¹⁾
Relative vapour density at : 4.1 (Air=1)
20 °C
Specific gravity density : 0.91 g/cm³ (20 °C) ²⁾
Solubility : miscible in all proportions with water
Log Pow : No data available
Auto-ignition temperature : 395 °C
Decomposition temperature : No data available
Viscosity, dynamic : 12.5 mPa · s (20 °C、OECD 114) ²⁾
Minimum ignition energy : No data available
Volume resistivity (Electric : No data available

conductivity)

10. Stability and reactivity

Chemical stability : Stable under normal conditions
Conditions to avoid : Overheating, Sparks, Open flame, Direct sunlight
Incompatible materials : Oxidizing agents, strong, Reducing agents, strong, Peroxides
Hazardous decomposition : Carbon monoxide products

11. Toxicological information

Acute toxicity (oral)
LD50 oral (rat) : 4400 mg/kg (GLP)³⁾
LD50 oral (mouse) : 5830 mg/kg⁴⁾
Acute toxicity (dermal)
LD50 dermal (rat) : > 2000 mg/kg (GLP)⁵⁾
LD50 dermal (mouse) : > 2000 mg/kg⁴⁾
Skin corrosion/irritation : No irritant (rabbit)⁵⁾
Serious eye damage/eye irritation : Moderate irritating (rabbit)⁵⁾
Skin sensitization : No evidence of skin sensitization. (Guinea-pig)⁵⁾
Respiratory sensitization : No data available
Germ cell mutagenicity : Ames test : Negative³⁾
Chromosomal aberration test (CHO cells): Negative⁶⁾
Reproductive toxicity : No effects on fertility of male and female parents and on each of the indices for development/growth of pups were evident. (Species:rat, applied dose: 250, 500, 2000 mg/kg bw/day, GLP compliance)⁷⁾
Specific target organ toxicity (single exposure) : No data available
Specific target organ toxicity (repeated exposure) : <28days Repeat Dose toxicity (rat)>⁶⁾
MMB cause reversible effects mainly on the liver and kidney in the test.
NOEL(male) 60 mg/kg/day, NOEL(female) 250 mg/kg/day
<90days Repeated Dose Oral Toxicity (rat)>²⁾
LOAEL 1000 mg/kg/day (male&female)
NOAEL 250 mg/kg/day (female)
Aspiration hazard : No data available

12. Ecological information

Ecological Toxicity
Acute toxicity to Fish : LC50 > 100 mg/L (96 h, *Oryzias latipes*)⁸⁾
TLm 7400 ppm (48 h, *Oryzias latipes*)⁹⁾
Acute toxicity to Daphnia : EC50 > 1000 mg/L (48h, *Daphnia magna*)⁸⁾
Algal growth inhibition test : ErC50 > 1000 mg/L (72h, *Selenastrum capricornutum*)⁸⁾
Daphnia magna Reproduction Test : NOEC >= 100 mg/L (21 days, *Daphnia magna*)⁸⁾
Persistence and degradability : Product is biodegradable
Biochemical oxygen demand (BOD) : 5.0 mg/L(1000mg/L aqueous solution)¹⁰⁾
Chemical oxygen demand (COD) : 8060 mg/L (Result of 1% aqueous solution of MMB)¹⁰⁾
Bioaccumulative potential : No data available
Ecology - soil : This material dissolves in water and may move in the soil
Hazardous to the ozone layer : Ingredients are not listed on the Appendix of the Montreal Protocol.

13. Disposal considerations

Ecology - waste materials : The low-concentrated waste water of this substance can disintegrate in activated sludge.

Contaminated container and packaging : Packing which cannot be properly cleaned must be disposed of.

14. Transport information

International Regulations : In accordance with IATA/IMDG/ADR, this product is not regulated as dangerous goods for transport.

UN-No. : Not restricted

Proper Shipping Name : Not restricted

UN Class : Not restricted

Packing group : Not restricted

Marine pollutant : Not restricted

Regulations in Japan : Fire Service Law : Group 4 - Flammable liquids

Special safety measures related to transportation : Follow applicable laws, packaging, display and transport.
Check there are not the damage and/or a leak of the container
Ensure prevention of collapse of cargo.
The transport container must be handled carefully, in order to avoid the impact.
Do not fall down and/or bump.
Top Load Only.
High humidity strictly prohibited.
Note Fire.
During the loading and unloading of tank trucks, please use the bollard. Make sure the connection of the hose. Remove the residue in the hose completely, before disconnecting the hose.

15. Regulatory information

Law Relating to Prevention of Marine Pollution and Maritime Disasters in Japan : Noxious Liquid Substances - Category Z (Law Art.3(3), Enforcement Order, Art.1-2, Attached Table No.1 Item 3)

Law for PRTR and Promotion of Chemical Management in Japan : The materials subject to PRTR Law is not contained.

* Other regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Name	TSCA	EC No	IECSC	ECL	DSL	AICS	NZIOC	PICCS
3-Methoxy-3-methyl-1-butanol	Listed	260-252-4	Listed	Listed	Listed	Listed	Listed	Listed

Reference

- 1) Notox/NL
- 2) ECHA Website
- 3) Huntingdon Research Centre Ltd./UK
- 4) Japan Industrial Safety & Health Association.
- 5) Inveresk Reserch International Ltd./UK
- 6) Japan Existing Chemical Data Base
- 7) ARGUS RESEARCH LABORATORIES, INC
- 8) Japan CHEmicals Collaborative Knowledge database.
- 9) Chemicals Inspection & Testing Inst., Japan,
- 10) NIPPON YURYO KENTEI KYOKAI/JISK-0102-17

Reference database

3-Methoxy-3-methyl-1-butanol : CosIng, JCDB DATABASE, LOLI

- This safety data sheet summarizes the precautions for proper use of our products briefly. Therefore this is only applicable for normal handling.

- Before handling this products refer to this Safety Data Sheet.
And please handle this product properly on your responsibility. The information in this SDS is due to our proprietary knowledge and information available at the time, and is not meant to be a guarantee of any kind. This SDS may be revised based on new knowledge and revision of laws and regulations.