

SAFETY DATA SHEET

Date: 29 March 2011

SDS No. KIM-40E

Version number: 1

Section 1: Product and Company Identification

Product name	3-Methoxy-3-methyl-1-butyl Acetate MMB-AC
Use	Raw material (see Section 15 for uses and restrictions on use)
Supplier	Kuraray America, INC. 2625 Bay Area Boulevard, Suite 300 Houston, Texas 77058-1551 U.S.A. Tel. 1-713-495-7325 <i>Manufacturer:</i> Kuraray Co. Ltd., Isoprene Chemicals Division, 1-1-3 , Otemachi , Chiyoda-ku , Tokyo 100-8115, Japan; Tel. 81-3-6701-1620; Fax 81-3-6701-1646.
Emergency number	Tel. 1-212-986-2230 (9 am – 6 pm EST, Mon – Fri), Kuraray America, Inc. Tel. 81-3-6701-1620 (Kuraray Co., Ltd.).

Section 2: Hazards identification

2.1 Emergency Overview

Signal word	Caution
Appearance	Transparent liquid
Hazards	Combustible liquid and vapour

2.2 OSHA regulatory status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

2.3 Potential health effects

Eye	May cause slight irritation.
Skin	Very slight irritation. Not expected to cause allergy (dermatitis). Substance may be absorbed through the skin (70%).
Inhalation	Not available. The product is expected to be fully absorbed through the lung.
Ingestion	Small amounts (teaspoonful) are not expected to be harmful. The product is expected to be fully absorbed through the gastro-intestinal tract.
Chronic effects	Available data does not give concern for short-term effects (see Section 11), but long-term data is not available, so handle with caution.

2.4 Potential environmental effects Not expected to cause long-term effects in the aquatic environment.



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Section 3: Composition/information on ingredients

Declarable components	Conc. (wt%)	CAS No.
3-Methoxy-3-methyl-1-butyl acetate	>99.0	103429-90-9
Other components		
Not available.		

Section 4: First-aid measures

First aid procedures

Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention if irritation persists.
Skin	Remove contaminated clothing and wash affected area thoroughly with mild soap and water. Get medical attention if irritation occurs. Launder contaminated clothing before re-use.
Inhalation	If inhalation of the product is suspected, remove exposed person to fresh air, and give rest. Get medical attention if symptoms persist.
Ingestion	If swallowed, wash out mouth thoroughly and give water to drink. Seek immediate medical attention if symptoms occur, or if more than a teaspoonful swallowed. Do not induce vomiting, unless instructed by medical personnel.

Notes to physicians Treat symptoms as they occur.

Section 5: Fire fighting measures

5.1 Flammable properties Combustible liquid and vapour.

5.2 Extinguishing media

Suitable	Water spray, foam, dry chemical powder or CO ₂ .
Unsuitable	Not available.

5.3 Protection of fire-fighters

Specific hazards arising from the chemical	The product will decompose if involved in a fire, producing smoke, and potentially toxic gases and vapours.
Protective equipment and precautions	Remove containers from fire or cool them with water spray. Firefighters should wear an approved self-contained breathing apparatus and full protective clothing.

Section 6: Accidental release measures

6.1 Personal precautions For large-scale spills, ensure full personal protection is worn. Evacuate unauthorised personnel from the spillage area. Product may produce a slip hazard. Ventilate area. Use non-sparking tools



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and equipment, and extinguish sources of ignition. Follow prescribed procedures for responding to large spills and reporting to authorities.

For recommended personal protective equipment, see Section 8.

For disposal considerations, see Section 13.

6.2 Environmental precautions

Prevent product from entering water courses or drainage system by bunding or absorption with inert material.

6.3 Methods for containment and clean-up

Stop the source of leak or release. Clean up spill as soon as possible, using absorbent materials (eg dry sand or earth). Wash contaminated surfaces with water, and collect washings and wastes for safe disposal.

Section 7: Handling and storage

7.1 Handling

When using this substance: avoid skin contact, avoid breathing the substance, and avoid ingestion. Use skin protection. For recommended personal protective equipment, see Section 8. Do not eat or drink in the workplace. Use only in the well-ventilated areas.

Do not allow smoking, or sources of ignition in handling and storage areas. Electrically ground all equipment. Never use air pressure for transferring product.

7.2 Storage

Keep containers closed when not in use. Store in a cool, dry, well-ventilated place away from direct sunlight.

Section 8: Exposure controls/personal protection

8.1 Exposure guidelines

US limit values

None.

8.2 Engineering controls

Good general ventilation is recommended. If operations cause high airborne concentrations (eg heating or spraying), local exhaust ventilation may be required.

8.3 Personal protective equipment (PPE)

The need for personal protective equipment should be based on a workplace risk assessment for the particular use.

Wear chemical resistant gloves as follows: butyl rubber with minimum thickness of 16.6 mm; or Silver Shield gloves with a minimum thickness of 2.7 mm when handling neat substance; gloves should be replaced at the end of each working shift. Wear eye protection/face shield. Where more extensive contact may occur, wear suitable protective clothing (eg apron, overalls). Wear respiratory protective equipment (organic vapour mask) if exposure to vapours is possible.

PPE should be to national standards. Consult manufacturers concerning breakthrough times.

Section 9: Physical and chemical properties

Appearance

Transparent liquid



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Odour	Mild
Odour threshold	Not available
pH	Not available
Melting/freezing point	< -100 °C (-148 °F)
Initial boiling point/range	187.3 °C (369.1 °F)
Flash point	76 °C (169 °F) (closed cup method)
Evaporation rate	10 (n-butyl acetate = 100)
Flammability (solid, gas)	Not applicable
Flamm. or expl. limits	Lower 0.4; upper 5.1 vol%
Vapour pressure	53 Pa (20 °C)
Vapour density	5.6 (air = 1)
Relative density	0.957
Solubilities	58.3 g/l in water (20 ± 0.5 °C) (68 °F)
Partition coeff. (log K _{ow})	1.6 (25 °C) (77 °F)
Auto-ignition temp.	>400 °C (>752 °F)
Decomposition temp.	Not available
Viscosity	2.4 mPa · s (20 °C)
Other information	Surface tension 65.5 mN/m (1g/L aqueous solution, 20 °C)

Section 10: Stability and reactivity

10.1 Reactivity	Contains an organic acid. Will react with alkaline substances producing heat.
10.2 Possibility of hazardous reactions	Not available.
10.3 Chemical stability	Stable under recommended storage and handling conditions.
10.4 Conditions to avoid	Avoid static discharge. Combustible vapors can be released at elevated temperatures.
10.5 Incompatible materials	Strong acids, alkalis, and oxidising agents.
10.6 Hazardous decomposition products	Not available.

Section 11: Toxicological information

Acute toxicity	LD ₅₀ (oral, rat), 4600 mg/kg (not harmful). The product is expected to be fully absorbed through the gastro-intestinal tract. LD ₅₀ (dermal, rat), >2000 mg/kg (no deaths were observed at 2000 mg/kg) (not harmful). It is expected that the product will be absorbed
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	through the skin (70%). The product is expected to be fully absorbed through the lung.
Skin corrosion/irritation	Very slight erythema (score 1) was observed (rabbit), which was fully recovered at 48h after patch removal.
Serious eye damage/irritation	Slightly irritant (rabbit).
Respiratory or skin sensitisation	Skin: negative (Magnusson–Kligman) (guinea pig).
Germ cell mutagenicity	Ames test: negative; chromosome aberration (OECD 473): negative; <i>in vitro</i> mutation test using mouse lymphoma L5178Y cells (OECD 476): negative.
Carcinogenicity	No data available.
Reproductive toxicity	Repeated dose toxicity (OECD 422): NOEL (reproductive effects) 1000 mg/kg bw/day (male/female).
STOT-single exposure	Not available.
STOT-repeated exposure	Repeated dose toxicity (OECD 422): NOEL 150 mg/kg bw/day (male/female).
Aspiration hazard	Not available.

Section 12: Ecological information

Toxicity	Toxicity to fish: LC ₅₀ (medaka; <i>Oryzias latipes</i>): 73.8 mg/l (exposure time: 96 h); toxicity to daphnia: EC ₅₀ : >100 mg/l (exposure time: 48 h); toxicity to aquatic plants: EC ₅₀ : >100 mg/l (exposure time: 72 h).
Persistence and degradability	For the product: readily biodegradable; Chemical Oxygen Demand: 6040 mg/L (1% aqueous solution); 5210 mg/L (COD after aeration for 16 h at 1.5 L/min); Biological Oxygen Demand: 365 mg/L (measured value for a 1000 mg/L solution).
Bioaccumulation potential	Not available.
Mobility in environmental media	Adsorption/desorption: log L _{oc} 1.2 (25 °C).
Other adverse effects	Not available.

Section 13: Disposal considerations

Incineration or recycling are the recommended methods of disposal for the product. Small amounts of product may be suitable for disposal via the drains. Disposal to landfill is not recommended. Dispose of contaminated product, empty containers and materials used in cleaning up spills or leaks in accordance with current local, state, or federal regulations. Local regulations may be more stringent than federal requirements.

Section 14: Transport information

14.1 Basic shipping description



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Identification number	Not classified according to US DOT criteria.
Proper shipping name	Not applicable.
Hazard class	Not applicable.
Packing group	Not applicable.
Environmental hazards	Not applicable.
14.2 Additional information	Not available.

Section 15: Regulatory information

US Federal regulations

Ingredient	Section 302 (EHS TPQ)	Section 304 EHS RQ	CERCLA RQ	Section 313	RCRA Code	CAA 112(r) TQ
None	No	No	No	No	No	No

OSHA: Hazard Communication Rule, 29 CFR, 1910.1200.

EPCRA (Emergency Planning and Community Right-to-Know Act): Section 302: Extremely Hazardous Substances (EHS), Threshold Planning Quantity (TPQ) in 40 CFR 355; EPCRA Section 304 gives EHS reportable quantities (RQ); Section 313 Toxic Chemicals, subject to annual reporting (40 CFR 372).

CERCLA (Comprehensive Environmental Response Compensation and Liability Act), Hazardous Substances; accidental release of substances above the Reportable Quantity (RQ) listed requires reporting; local reporting requirements may be in force.

RCRA Hazardous Wastes: RCRA P and U lists (40 CFR 261.33).

CAA Substances for Accidental Release Prevention: Clean Air Act 112 (r), Hazardous Air Pollutants; Threshold Quantities (TQ).

Other regulatory

TSCA listed. PMN number P-00-618. This product is subject to restriction described in SNUNs (S-11-0004 And S-05-003), as follows:

- (i) Not to be used in consumer products
- (ii) The concentration of this product is limited to 10% or less in final products whose uses involve an application method that generates a vapour, mist, or aerosol, except for commercial/professional inkjet printing in a commercial (excluding retail) print shop.
- (iii) Maximum 12-month production volume: 200 000 kg/y (not including 120 000 kg from S-11-04).
- (iv) Distribute the SNUN substance only to a person who agrees to follow the same restrictions (except the testing department).
- (v) Not manufacture the SNUN substance in the United States.

Specific uses:

- (i) Organic solvent of polyurethane plastic coating
- (ii) Ingredient of various kinds of paint thinner
- (iii) Organic solvent of polyurethane resin
- (iv) Ingredient of cleaning agent, especially for commercial use
- (v) Organic solvent for screen ink
- (vi) Ingredient in airplane ink



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(vii) Commercial professional inkjet printing in a commercial (excluding retail) print shop

Section 16: Other information

Revisions

This SDS is the first version in US format.

NFPA hazard rating



Abbreviations

LC, lethal concentration; LD, lethal dose; NOAEL, no-observed-adverse-effect level; NOEC, No-observed-effect-concentration; STOT RE, specific organ toxicity repeated exposure; STOT SE, specific target organ toxicity single exposure.

References

Huntingdon Research Centre Ltd., UK.
Inveresk Research International Ltd., UK.
Japan Oil Stuff Inspectors' Corporation.
Japan Industrial Safety Association.
Argus Research Laboratory Inc., USA
Nihon Mouhatsu Kagaku Kyokai, JAPAN
Japan Oil Stuff Inspectors' Corporation
Chemicals Inspection & Testing Institute, JAPAN
MITI, Japan
Guide to Occupational Exposure Values; ACGIH, 2009.
NFPA 704: Standard System for the identification of the Hazards of Materials for Emergency Response: 2007 Edition.

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