

Material Safety Data Sheet



value creation in chemicals
25-Mar-2013
4 .00

10070
2-Methylbutyric acid

Revision Date
Revision Number

1. PRODUCT AND COMPANY IDENTIFICATION

Identification of the
substance/preparation

2-Methylbutyric acid

CAS-No 116-53-0
EINECS-No 204-145-2
Use of the Substance
/Preparation Intermediate.

Company/Undertaking
Identification **OXEA GmbH**
Otto-Roelen-Str. 3
D-46147 Oberhausen
Germany

Product Information Product Stewardship
FAX: +49 (0)208 693 2053
email: psq@oxea-chemicals.com

Emergency telephone number +44 (0) 1235 239 670 (UK)
in USA, call 800 424 9300
outside USA, call 703 527 3887, collect calls accepted

2. HAZARDS IDENTIFICATION

GHS / CLP

Basis for Classification This substance is classified based on GHS (United Nations version 2011)

Classification

Flammable liquid	Category 4
Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Skin corrosion/irritation	Category 1B
Serious eye damage/eye irritation	Category 1

Labelling

Hazard symbols



Signal word

Danger

Hazard statements

H227: Combustible liquid
H302: Harmful if swallowed
H312: Harmful in contact with skin
H314: Causes severe skin burns and eye damage

Material Safety Data Sheet



10070
2-Methylbutyric acid

Revision Date
Revision Number

25-Mar-2013
4.00

Precautionary statements P280: Wear protective gloves and eye/face protection
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310: Immediately call a POISON CENTRE or doctor

Other Hazards Vapour/air-mixtures are explosive at intense warming

USA

Emergency Overview

Statements of hazard **Danger**
Combustible liquid and vapour
Causes skin and eye burns
Causes respiratory tract irritation;
May be harmful if swallowed
May be harmful in contact with skin
Vapour/air-mixtures are explosive at intense warming

OSHA Regulatory Status This material is hazardous as defined by the American OSHA Hazard Communication Standard (29CFR 1910.1200).

Potential Health Effects

Principle Routes of Exposure Inhalation, Eye contact, Skin contact, Ingestion.

Inhalation Causes respiratory tract irritation; .
Eye contact Causes eye burns.
Skin contact Causes skin burns. May be harmful in contact with skin.
Ingestion May be harmful if swallowed.
Main symptoms cough, dizziness, nausea, shortness of breath, unconsciousness, gastrointestinal discomfort.

Target Organ Effects Lung irritation
Lung oedema
Dermatitis

Medical conditions which may be aggravated by exposure:
Chronic exposure may cause dermatitis

Europe

Classification and labelling according to Directive 67/548/EEC or 1999/45/EC

Basis for Classification The product is classified in accordance with Annex VI to Directive 67/548/EEC
contains 2-Methylbutyric acid (CAS 116-53-0)

Material Safety Data Sheet



value creation in chemicals
25-Mar-2013

10070
2-Methylbutyric acid

Revision Date
Revision Number

4.00

Symbol(s)	C - Corrosive
R-phrases(s)	R21/22 - Harmful in contact with skin and if swallowed R34 - Causes burns
S-phrases(s)	S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
Other hazards	Vapour/air-mixtures are explosive at intense warming

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	REACH-No	1272/2008/EC
2-Methylbutyric acid	116-53-0	01-2119959862-23-0000** *	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318

Component	67/548/EEC	OSHA status	Concentration (%)
2-Methylbutyric acid	Xn;R21/22 C;R34	hazardous	> 99,0

4. FIRST AID MEASURES

General advice

Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Inhalation

Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Skin

Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion

Call a physician immediately. Do not induce vomiting without medical advice.

Main symptoms

cough, dizziness, nausea, shortness of breath, unconsciousness, gastrointestinal discomfort.

Special hazard

Lung irritation, Lung oedema, Dermatitis.

Notes to physician

Treat symptomatically. If ingested, flush stomach and compensate acidosis. In case of lung irritation, first treatment with cortisone spray.

Material Safety Data Sheet



value creation in chemicals
25-Mar-2013

10070
2-Methylbutyric acid

Revision Date
Revision Number

4 .00

5. FIRE-FIGHTING MEASURES

OSHA Flammability classification

Combustible liquid Class III A

Suitable extinguishing media

foam. dry chemical. carbon dioxide (CO₂). water spray.

Extinguishing media which must not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases

Under conditions giving incomplete combustion, hazardous gases produced may consist of:

carbon monoxide (CO)

carbon dioxide (CO₂)

Combustion gases of organic materials must in principle be graded as inhalation poisons

Vapours are heavier than air and may spread along floors

Vapour/air-mixtures are explosive at intense warming

Special protective equipment for fire-fighters

Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for fire-fighting

Cool containers / tanks with water spray. Water run-off and vapor cloud may be corrosive. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition. For emergency responders: Personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

7. HANDLING AND STORAGE

Handling

Advice on safe handling

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Material Safety Data Sheet



value creation in chemicals
25-Mar-2013

10070
2-Methylbutyric acid

Revision Date
Revision Number

4.00

Respiratory protection

Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Equipment should conform to NIOSH, EN or other applicable national standards.

Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Suitable material nitrile rubber

Suitable material polyvinylchloride

Eye protection

Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emission point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid				
Colour	colourless				
Odour	unpleasant				
Molecular weight	102,13				
Molecular formula	C5 H10 O2				
Flash point	77 °C				
Method	EN 22719				
Autoignition temperature	435 °C				
Method	DIN 51794				
Lower explosion limit	1,6 Vol %				
Upper explosion limit	7,3 Vol %				
Melting point/range	- 90 °C (Pour point)				
Boiling point/range	177 °C @ 1013 hPa				
Vapour pressure	Values	Values	Values	@ °C	@ °F
	[hPa]	[kPa]	[atm]		
	2	0,2	0,002	20	68
	9,1	0,91	0,009	50	122
Density	Values [g/cm ³]	@ °C	@ °F	Method	
	0,9360	20	68	DIN 51757	
Refractive index	1,405 @ 20 °C				
Viscosity	2,1 mPa*s @ 20 °C				
Method	dynamic, ASTM D445				

Material Safety Data Sheet



10070
2-Methylbutyric acid

Revision Date
Revision Number

25-Mar-2013
4.00

pH	3,1 (1 % in water @ 20 °C (68 °F))
Water solubility	45 g/l @ 20 °C, OECD 105
log Pow	1,8 (measured), OECD 117
Vapour density	~ 3,5 (Air = 1) @ 20 °C (68 °F)
Surface tension	64,2 mN/m (1 g/l @ 20°C), OECD 115

10. STABILITY AND REACTIVITY

Stability

Stable under recommended storage conditions.

Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

Materials to avoid

bases, amines, oxidizing agents.

Hazardous decomposition products

No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure Inhalation, Eye contact, Skin contact, Ingestion

Acute toxicity

2-Methylbutyric acid (116-53-0)

Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	1750 mg/kg	rat, male/female	OECD 401
Dermal	LD50	2228 mg/kg	rabbit male	OECD 402
Dermal	LD50	1367 mg/kg	rabbit female	OECD 402
Inhalative	LC0	8375 mg/m ³ (6 h)	rat, male/female	OECD 403

Irritation and corrosion

2-Methylbutyric acid (116-53-0)

Target Organ Effects	Species	Result	Method	
Skin	rabbit	corrosive	OECD 404	3 min

Subacute, subchronic and prolonged toxicity

2-Methylbutyric acid (116-53-0)

Type	Dose	Species	Method	
Subchronic toxicity	NOAEL: 5000 mg/kg/d (90d)	rat, male	Oral	read across

Carcinogenicity, Mutagenicity, Reproductive toxicity

2-Methylbutyric acid (116-53-0)

Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative	Ames test	read across
Developmental Toxicity	NOAEL 600 mg/kg/d	rat		OECD 414, Oral	read across

2-Methylbutyric acid, CAS: 116-53-0

Material Safety Data Sheet



value creation in chemicals
25-Mar-2013

10070
2-Methylbutyric acid

Revision Date
Revision Number

4.00

Main symptoms

cough, dizziness, nausea, shortness of breath, unconsciousness, gastrointestinal discomfort.

Note

An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration. Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:
<http://apps.echa.europa.eu/registered/registered-sub.aspx>.***

12. ECOLOGICAL INFORMATION

Acute aquatic toxicity

2-Methylbutyric acid (116-53-0)

Species	Exposure time	Dose	Method
Danio rerio (Zebra fish)	96h	LC50: > 1000 mg/l	OECD 203
Bacteria / Sewage	24h	TTC: 1250 mg/l	ETAD Fermentation tube method

2-Methylbutyric acid, CAS: 116-53-0

Biodegradation

67,9 % (10 d), Sewage, domestic, non-adapted, Readily biodegradable, OECD 301 D.

Note

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Product Information

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Hazardous waste according to European Waste Catalogue (EWC)

Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

14. TRANSPORT INFORMATION

IMDG

UN/ID No UN 3265
Proper shipping name Corrosive liquid, acidic, organic, n.o.s.
Hazard Inducer (2-Methylbutyric acid)
Class 8
Packing group II
EmS F-A, S-B

ICAO/IATA

UN/ID No UN 3265
Proper shipping name Corrosive liquid, acidic, organic, n.o.s.
Hazard Inducer (2-Methylbutyric acid)
Class 8
Packing group II

ADR/RID

Material Safety Data Sheet



value creation in chemicals
25-Mar-2013

10070
2-Methylbutyric acid

Revision Date
Revision Number

4 .00

UN/ID No	UN 3265
Proper shipping name	Corrosive liquid, acidic, organic, n.o.s.
Hazard Inducer	(2-Methylbutyric acid)
Class	8
Packing group	II
ADR Tunnel restriction code	(E)
Classification Code	C3
Hazard Number	80

D.O.T. (49CFR)

UN/ID No	UN 3265
Proper shipping name	Corrosive liquid, acidic, organic, n.o.s.
Hazard Inducer	(2-Methylbutyric acid)
Class	8
Packing group	II
Emergency Response Guide	153

15. REGULATORY INFORMATION

OSHA Regulatory Status

This material is hazardous as defined by the American OSHA Hazard Communication Standard (29CFR 1910.1200)

GHS / CLP

Basis for Classification

This substance is classified based on GHS (United Nations version 2011). (See chapter 2)

Water contaminating class (Germany)

Water contaminating class (Germany)	1
KBwS Number	6079
KBwS Classification	Annex 3

DI 96/82/EC (Seveso II)

Category	not subject
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International Inventories

2-Methylbutyric acid, CAS: 116-53-0

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2041452 (EU)
ENCS (2)-608 (JP)
ISHL (2)-608 (JP)
KECI KE-23544 (KR)
PICCS (PH)
TSCA (US)

16. OTHER INFORMATION

Material Safety Data Sheet



value creation in chemicals
25-Mar-2013

10070
2-Methylbutyric acid

Revision Date
Revision Number

4 .00

Full text of H-Statements referred to under section 3

H312: Harmful in contact with skin
H314: Causes severe skin burns and eye damage
H318: Causes serious eye damage

Full text of R-phrases referred to under sections 2 and 3

R21 - Harmful in contact with skin
R34 - Causes burns

Revision Date 25-Mar-2013
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Training advice

For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on Oxea owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 2001/58/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet

Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the Oxea homepage (www.oxea-chemicals.com).

The annex is not required because the substance is registered as an intermediate under REACH.***

Disclaimer

For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Oxea makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.