

# SAFETY DATA SHEET



**2-Methylbutyric acid**  
**10070**

Version / Revision 7  
Supersedes Version 6.01\*\*\*

Revision Date 25-Jun-2021  
Issuing date 25-Jun-2021

## SECTION 1: Identification of the substance / mixture and of the company / undertaking

### 1.1. Product identifier

Identification of the substance/preparation

**2-Methylbutyric acid**

CAS-No 116-53-0  
EC No. 204-145-2

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Transported isolated intermediate (1907/2006)  
Uses advised against None

### 1.3. Details of the supplier of the safety data sheet

Company/Undertaking **OQ Chemicals GmbH**  
Identification Rheinpromenade 4A  
D-40789 Monheim  
Germany

Product Information Product Stewardship  
FAX: +49 (0)208 693 2053  
email: sc.psq@oq.com

### 1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 670 (UK)  
available 24/7

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)

Acute oral toxicity Category 4, H302  
Acute dermal toxicity Category 4, H312  
Skin corrosion/irritation Category 1B, H314  
Serious eye damage/eye irritation Category 1, H318

#### Additional information

For full text of Hazard- and EU Hazard-statements see SECTION 16.

### 2.2. Label elements

Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).

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## Hazard pictograms



### Signal word

**Danger**

### Hazard statements

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

### Precautionary statements

P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
P304 + P340: IF INHALED: Remove person to fresh air and keep 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 CENTER/doctor.

## 2.3. Other hazards

Vapour/air-mixtures are explosive at intense warming

### PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

## SECTION 3: Composition / information on ingredients

### 3.1. Substances

Component	CAS-No	1272/2008/EC	Concentration (%)
2-Methylbutyric acid	116-53-0	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318	> 99,0

For full text of Hazard- and EU Hazard-statements see SECTION 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### Inhalation

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

#### Skin

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

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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.

## Ingestion

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

## 4.2. Most important symptoms and effects, both acute and delayed

### Main symptoms

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

### Special hazard

Lung irritation, Lung oedema, Dermatitis.

## 4.3. Indication of any immediate medical attention and special treatment needed

### General advice

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

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

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

foam, dry chemical, carbon dioxide (CO<sub>2</sub>), water spray

#### Unsuitable Extinguishing Media

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

### 5.2. Special hazards arising from the substance or mixture

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

carbon monoxide (CO)

carbon dioxide (CO<sub>2</sub>)

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

### 5.3. Advice for firefighters

#### Special protective equipment for firefighters

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

#### Precautions for firefighting

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.



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## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. 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.

### 6.2. Environmental precautions

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

### 6.3. Methods and material for containment and cleaning up

#### 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).

### 6.4. Reference to other sections

For personal protective equipment see section 8.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe 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.

#### Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

#### Advice on the protection of the environment

See Section 8: Environmental exposure controls.

#### Incompatible products

bases  
amines  
oxidizing agents

### 7.2. Conditions for safe storage, including any incompatibilities

#### Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapour/air-mixtures are explosive at intense

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warming.

## Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Keep at temperatures between -18 and 38 °C (0 and 100 °F).

## Suitable material

stainless steel, aluminium

## Unsuitable material

nickel, copper

## Temperature class

T2

## 7.3. Specific end use(s)

Transported isolated intermediate (1907/2006)

## SECTION 8: Exposure controls / personal protection

### 8.1. Control parameters

#### Exposure limits European Union

No exposure limits established

#### Exposure limits UK

No exposure limits established.

#### DNEL & PNEC

This substance is registered as intermediate under strictly controlled conditions.

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

##### Workers

No data available

##### General population

No data available

##### Environment

No data available

### 8.2. Exposure controls

#### Special adaptations (REACH)

Not applicable.

#### Appropriate Engineering controls

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

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## Personal protective equipment

### General industrial hygiene practice

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

### Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

### 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.

Equipment should conform to EN 166

### 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.

<b>Suitable material</b>	nitrile rubber
<b>Evaluation</b>	according to EN 374: level 6
<b>Glove thickness</b>	approx 0,55 mm
<b>Break through time</b>	> 480 min
<b>Suitable material</b>	polyvinylchloride
<b>Evaluation</b>	Information derived from practical experience
<b>Glove thickness</b>	approx 0,8 mm

### Skin and body protection

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

### Respiratory protection

Respirator with A filter. Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.

### Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion 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.

### Additional advice

Further details on substance data can be found in the registration dossier under the following link:  
<http://echa.europa.eu/information-on-chemicals/registered-substances>.

## **SECTION 9: Physical and chemical properties**

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	liquid
<b>Colour</b>	colourless
<b>Odour</b>	unpleasant
<b>Odour threshold</b>	No data available

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<b>pH</b>	3,1 (1 % in water @ 25 °C (77 °F)) DIN 19268
<b>Melting point/range</b>	- 90 °C @ 1013 hPa (Pour point)
<b>Method</b>	DIN ISO 3016
<b>Boiling point/range</b>	177 °C @ 1013 hPa
<b>Method</b>	OECD 103
<b>Flash point</b>	77 °C @ 1013 hPa
<b>Method</b>	EN 22719
<b>Evaporation rate</b>	No data available
<b>Flammability (solid, gas)</b>	Does not apply, the substance is a liquid
<b>Lower explosion limit</b>	1,6 Vol %
<b>Upper explosion limit</b>	7,3 Vol %

## Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
1,68	0,168	0,002	20	68	DIN EN 13016-2

**Vapour density** ~ 3,5 (Air = 1) @ 20 °C (68 °F)

## Relative density

Values	@ °C	@ °F	Method
0,9360	20	68	DIN 51757

**Solubility** 45 g/l @ 20 °C, in water, OECD 105  
**log Pow** 1,8 @ 25 °C (77 °F), measured, OECD 117  
**Autoignition temperature** 435 °C @ 1007 hPa

**Method** DIN 51794

**Decomposition temperature** No data available

**Viscosity** 2,1 mPa\*s @ 20 °C  
**Method** dynamic, ASTM D445

**Explosive properties** Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

**Oxidizing properties** Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

## 9.2. Other information

<b>Molecular weight</b>	102,13
<b>Molecular formula</b>	C5 H10 O2
<b>Dissociation constant</b>	pKa 4,8 @ 20 °C (68 °F) OECD 112
<b>Refractive index</b>	1,405 @ 20 °C
<b>Surface tension</b>	64,2 mN/m (1 g/l @ 20°C (68°F)), OECD 115

## SECTION 10: Stability and Reactivity

### 10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

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Hazardous polymerisation does not occur.

## 10.4. Conditions to avoid

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

## 10.5. Incompatible materials

bases, amines, oxidizing agents.

## 10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

**Likely routes of exposure**      Ingestion, Inhalation, Eye contact, Skin contact

<b>Acute toxicity</b>				
<b>2-Methylbutyric acid (116-53-0)</b>				
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 <sup>3</sup> (6 h)	rat, male/female	OECD 403

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

##### **Assessment**

The available data lead to the classification given in section 2

An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration

<b>Irritation and corrosion</b>				
<b>2-Methylbutyric acid (116-53-0)</b>				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	corrosive	OECD 404	3 min

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

##### **Assessment**

The available data lead to the classification given in section 2

Available skin corrosion data suffice for classification of eye corrosion without further testing

For respiratory irritation, no data are available

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

##### **Assessment**

Skin sensitization was not tested due to the corrosive properties of the substance

For respiratory sensitization, no data are available

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

##### **Assessment**

Based on available data, the classification criteria are not met for:

STOT RE



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<b>Carcinogenicity, Mutagenicity, Reproductive toxicity</b>					
<b>2-Methylbutyric acid (116-53-0)</b>					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium Escherichia coli	negative	OECD 471 (Ames)	

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

### **CMR Classification**

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

### **Evaluation**

In vitro tests did not show mutagenic effects

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

### **Main symptoms**

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

### **Target Organ Systemic Toxicant - Single exposure**

Based on available data, the classification criteria are not met for:  
STOT SE

### **Target Organ Systemic Toxicant - Repeated exposure**

Based on available data, the classification criteria are not met for:  
STOT RE

### **Aspiration toxicity**

no data available

### **Note**

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://echa.europa.eu/information-on-chemicals/registered-substances>.

## **SECTION 12: Ecological information**

### **12.1. Toxicity**

<b>Acute aquatic toxicity</b>			
<b>2-Methylbutyric acid (116-53-0)</b>			
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
Daphnia magna (Water flea)	48h	LC50: 88,1 mg/l	OECD 202 read across
Pseudokirchneriella subcapitata	72h	EC50: 73,2 mg/l (Growth rate)	OECD 201 read across

### **Long term toxicity**

<b>2-Methylbutyric acid (116-53-0)</b>			
Type	Species	Dose	Method
Aquatic toxicity	Pseudokirchneriella subcapitata	NOEC: 54,4 mg/l (3d) Growth inhibition	OECD 201 read across

### **12.2. Persistence and degradability**

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

### **Biodegradation**

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

### **Abiotic Degradation**

#### **2-Methylbutyric acid (116-53-0)**

Type	Result	Method
Hydrolysis	No data available	
Photolysis	No data available	

## **12.3. Bioaccumulative potential**

#### **2-Methylbutyric acid (116-53-0)**

Type	Result	Method
log Pow	1,8 @ 25 °C (77 °F)	measured, OECD 117
BCF	No data available	

## **12.4. Mobility in soil**

#### **2-Methylbutyric acid (116-53-0)**

Type	Result	Method
Surface tension	64,2 mN/m (1 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	no data available	
Distribution to environmental compartments	no data available	

## **12.5. Results of PBT and vPvB assessment**

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

### **PBT and vPvB assessment**

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

## **12.6. Other adverse effects**

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

No data available

## **SECTION 13: Disposal considerations**

### **13.1. Waste treatment methods**

#### **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)

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## Uncleaned empty packaging

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

## SECTION 14: Transport information

### ADR/RID

14.1. UN number	UN 3265
14.2. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (2-Methylbutyric acid)
14.3. Transport hazard class(es)	8
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
ADR Tunnel restriction code	(E)
Classification Code	C3
Hazard Number	80

### ADN

ADN: Container and Tanker

14.1. UN number	UN 3265
14.2. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (2-Methylbutyric acid)
14.3. Transport hazard class(es)	8
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
Classification Code	C3
Hazard Number	80

### ICAO-TI / IATA-DGR

14.1. UN number	UN 3265
14.2. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (2-Methylbutyric acid)
14.3. Transport hazard class(es)	8
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	no data available

### IMDG

14.1. UN number	UN 3265
14.2. UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (2-Methylbutyric acid)
14.3. Transport hazard class(es)	8
14.4. Packing group	II

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**14.5. Environmental hazards** no  
**14.6. Special precautions for user**  
EmS F-A, S-B  
**14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code** not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Regulation 1272/2008, Annex VI

not listed

#### DI 2012/18/EU (Seveso III)

Category not subject

#### DI 1999/13/EC (VOC Guideline)

Component	Status
2-Methylbutyric acid CAS: 116-53-0	regulated

### 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)  
INSQ (MX)  
PICCS (PH)  
TSCA (US)  
NZIoC (NZ)  
TCSI (TW)

### National regulatory information Great Britain

#### **Releases to air (Pollution Inventory Substances)**

not subject

#### **Releases to water (Pollution Inventory Substances)**

not subject

#### **Releases to sewer (Pollution Inventory Substances)**

not subject

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## The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019 No. 758 \*\*\*

Component	Status
2-Methylbutyric acid CAS: 116-53-0	The substance will not be pre-registered.***

For details and further information please refer to the original regulation

## 15.2. Chemical safety assessment

The Chemical Safety Report (CSR) is not required.

## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3

H302: Harmful if swallowed.  
H312: Harmful in contact with skin.  
H314: Causes severe skin burns and eye damage.  
H318: Causes serious eye damage.

### Abbreviations

A table of terms and abbreviations can be found under the following link:  
[http://echa.europa.eu/documents/10162/13632/information\\_requirements\\_r20\\_en.pdf](http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf)

### 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 OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/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 OQ homepage ([www.chemicals.oq.com](http://www.chemicals.oq.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. OQ 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.

**End of Safety Data Sheet**

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