We create chemistry

Safety data sheet

1. Identification

Product identifier

Isobutene pure

Chemical name: 2-methylopropene
CAS Number: 115-11-7

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Chemical, Intermediate, Monomer.
Recommended use: Chemical

Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY
Operating Division Petrochemicals

Telephone: +49 621 60-42151
E-mail address: sds-petrochemicals@basf.com

Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

2. Hazards Identification

Classification of the substance or mixture

According to UN GHS criteria

Flam. Gas 1A
Press. Gas Liquefied gas

For the classifications not written out in full in this section the full text can be found in section 16.

Label elements

Globally Harmonized System (GHS)

Pictogram:

Signal Word:
Danger

Hazard Statement:

H280	Contains gas under pressure; may explode if heated.
H220	Extremely flammable gas.

Precautionary Statements (Prevention):

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Precautionary Statements (Response):

P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	In case of leakage, eliminate all ignition sources.

Precautionary Statements (Storage):

P410 + P403	Protect from sunlight. Store in a well-ventilated place.

Other hazards

According to UN GHS criteria

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture. See section 12 - Results of PBT and vPvB assessment.

3. Composition/Information on Ingredients

Substances

Chemical nature

2-Methylpropene (Content (W/W): >= 99,85 %)
CAS Number: 115-11-7
EC-Number: 204-066-3
INDEX-Number: 601-012-00-4

Hazardous ingredients (GHS)
According to UN GHS criteria

No particular hazards known.

For the classifications not written out in full in this section the full text can be found in section 16.

Mixtures

Not applicable

4. First-Aid Measures

Description of first aid measures

Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air.

On skin contact:
Wash thoroughly with soap and water

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion:
Rinse mouth and then drink 200-300 ml of water.

Most important symptoms and effects, both acute and delayed

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Hazards: (Further) symptoms and / or effects are not known so far

Indication of any immediate medical attention and special treatment needed

Treatment: Symptomatic treatment (decontamination, vital functions).

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
carbon dioxide, dry powder

Unsuitable extinguishing media for safety reasons:
foam, water spray, water jet

Additional information:

Use extinguishing measures to suit surroundings.

Special hazards arising from the substance or mixture

Highly flammable. Vapours may form explosive mixture with air.

Shut off or stop released substance/product under safe conditions. Cool endangered containers with water-spray.

If product is heated above decomposition temperature acrid smoke and fumes will be released.
Burning produces harmful and toxic fumes.

Advice for fire-fighters

Special protective equipment:
Wear a self-contained breathing apparatus. Special protective equipment for firefighters

Further information:
Do not put fire out unless flow feeding it can be safely stopped. The substance/product forms flammable mixtures with air. Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Extend fire extinguishing measures to the surroundings.

6. Accidental Release Measures

Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Personal precautions, protective equipment and emergency procedures

Avoid contact with the skin, eyes and clothing. Avoid all sources of ignition: heat, sparks, open flame.
Wear respiratory protection if ventilation is inadequate.

Keep people away and stay on the upwind side.

Handle in accordance with good industrial hygiene and safety practice.

Environmental precautions

Contain contaminated water/firefighting water.

Methods and material for containment and cleaning up

Ensure adequate ventilation.

Suppress gases/vapours/mists with water spray jet.

7. Handling and Storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:

Avoid all sources of ignition: heat, sparks, open flame. Vapours may form explosive mixture with air.

Conditions for safe storage, including any incompatibilities

No applicable information available.
Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place. Keep away from sources of ignition - No smoking.

Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8. Exposure Controls/Personal Protection

Control parameters

Components with occupational exposure limits

115-11-7: 2-Methylpropene

Exposure controls

Personal protective equipment

Respiratory protection:
Respiratory protection required in case of exceptional circumstances (e.g.: accidental release, exceeding the occupational exposure limit) Suitable respiratory protection: e.g. Self-contained breathing apparatus.

Hand protection:
When there is a risk of frostbite from escaping gas, use thermally insulated gloves (EN 511).

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):
fluoroelastomer (FKM) - 0.7 mm coating thickness

Suitable materials for short-term contact (recommended: At least protective index 2, corresponding > 30 minutes of permeation time according to EN ISO 374-1)
nitrile rubber (NBR) - 0.4 mm coating thickness

Manufacturer's directions for use should be observed because of great diversity of types.
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Avoid contact with the skin, eyes and clothing. Ensure adequate ventilation. Avoid inhalation of vapour. At the end of the shift the skin should be cleaned and skin-care agents applied. Remove contaminated clothing immediately and dispose of safely. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Form:	pressurised liquified gas	
Colour:	colourless	
Odour:	benzene-like	
Odour threshold:	not determined	
pH value:	The substance does not dissociate.	
Melting point:	-140,7 °C (1.013 hPa) Literature data.	
Boiling point:	-6,9 °C (1.013 hPa) Literature data.	
Flash point:	-76 °C	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	
Flammability:	Extremely flammable.	(other)
Lower explosion limit:	1,8 %(V) Literature data.	(air)
Upper explosion limit:	9,6 %(V) Literature data.	
Ignition temperature:	465 °C Literature data.	
Vapour pressure:	Study scientifically not justified.	
Density:	0,59 g/cm3 (25 °C) Literature data.	
Relative density:	0,59 (25 °C) Literature data.	
Relative vapour density (air):	2 Literature data.	
Solubility in water:	Literature data. 263 mg/l (25 °C)	(other)
Solubility (qualitative) solvent(s):	organic solvents soluble	
Partitioning coefficient n-octanol/water (log Kow):	2,34 (25 °C) Literature data.	(calculated)

Self ignition:	not self-igniting	Test type: Spontaneous self-ignition at room-temperature.
	Temperature: 465 °C	Test type: Self-ignition at high temperatures.
Thermal decomposition:	No decomposition if correctly stored and handled.	
Viscosity, dynamic:	0,16 mPa.s (20 °C)	
Viscosity, kinematic:	0,27 mm2/s (20 °C)	
Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	

Other information

Self heating ability:	Study scientifically not justified.	
Radioactivity:		not radioactive for transport purposes
pKA:	The substance does not dissociate.	
Adsorption/water - soil:	KOC: 117,5; log KOC: 2,07	(calculated)
Surface tension:	Based on chemical structure, surface activity is not to be expected.	
Grain size distribution:	The substance / product is marketed or used in a non solid or granular form.	
Molar mass:	56,11 g/mol	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:	Corrosive effects to metal are not anticipated.	
Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Peroxides:	The product/the substance has not a tendency towards the formation of peroxide.

Possibility of hazardous reactions
No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid
Avoid all sources of ignition: heat, sparks, open flame.

Incompatible materials

Substances to avoid:
strong oxidizing agents

Hazardous decomposition products

:
No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
Virtually nontoxic by inhalation.

Experimental/calculated data:
(oral):Study technically not feasible.

LC50 rat (by inhalation): > 23 mg/l > 10000 ppm 4,00 h (OECD Guideline 403)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. A gas was tested.

(dermal):Study technically not feasible.

Irritation

Assessment of irritating effects:
Contact with liquid may cause frostbite. The substance is gaseous at room temperature and pressure. Testing for this particular endpoint is technically not feasible and/or this endpoint does not represent a relevant exposure scenario.

Experimental/calculated data:
Skin corrosion/irritation: Study technically not feasible.

Serious eye damage/irritation: Study technically not feasible.

Respiratory/Skin sensitization

Assessment of sensitization:
No data available. The substance is gaseous at room temperature and pressure. Testing for this particular endpoint is technically not feasible and/or this endpoint does not represent a relevant exposure scenario.

Experimental/calculated data:
Study technically not feasible.

Germ cell mutagenicity

Assessment of mutagenicity:
The substance was not mutagenic in bacteria. No mutagenic effect was found in various tests with mammalian cell culture and mammals.

Carcinogenicity

Assessment of carcinogenicity:
Results from a number of long-term carcinogenity studies and short-term tests are available. Taking into account all of the information, there is no indication that the substance itself is carcinogenic.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:
No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
No substance-specific organtoxicity was observed after repeated administration to animals.

Aspiration hazard

not applicable

12. Ecological Information

Toxicity

Assessment of aquatic toxicity:
At the present state of knowledge, no negative ecological effects are expected.

Toxicity to fish:
LC50 (96 h) 22 mg/l, Fish (calculated)
The product has not been tested. The statement has been derived from the structure of the product.

Aquatic invertebrates:
EC50 (48 h) 16 mg/l, daphnia (calculated)
The product has not been tested. The statement has been derived from the structure of the product.

Aquatic plants:
EC10 (96 h) 3 mg/l, algae (calculated)
The product has not been tested. The statement has been derived from the structure of the product.

Microorganisms/Effect on activated sludge:
No data available.

Chronic toxicity to fish:
No data available.

Chronic toxicity to aquatic invertebrates:
No data available.

Assessment of terrestrial toxicity:
No data available concerning terrestrial toxicity.

Persistence and degradability

Assessment biodegradation and elimination (H2O):
Product is expected to be readily biodegradable. The product is highly volatile and can be eliminated from water by stripping.

Elimination information:
50 % (1,91 d) (calculated) (aerobic)
The product has not been tested. The statement has been derived from the structure of the product.

Assessment of stability in water:
According to structural properties, hydrolysis is not expected/probable.
Information on Stability in Water (Hydrolysis):
No data available.

Bioaccumulative potential

Assessment bioaccumulation potential:
No significant accumulation in organisms is expected as a result of the distribution coefficient of n-octanol/water (log Pow).

Bioaccumulation potential:
No data available.

Mobility in soil

Assessment transport between environmental compartments:
Volatility: The substance will rapidly evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is not expected.

Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

13. Disposal Considerations

Waste treatment methods

Dispose of in accordance with national, state and local regulations.

Contaminated packaging:
Disposal must be made according to official regulations.

14. Transport Information

Land transport

ADR

UN number or ID number:	UN1055
UN proper shipping name:	ISOBUTYLENE
Transport hazard class(es):	2.1
Packing group:	Not applicable
Environmental hazards:	no
Special precautions for user:	Tunnel code: B/D

RID

UN number or ID number:	UN1055
UN proper shipping name:	ISOBUTYLENE
Transport hazard class(es):	2.1, 13
Packing group:	Not applicable
Environmental hazards:	no
Special precautions for user:	Shunting label: 13

Inland waterway transport

ADN

UN number or ID number:	UN1055
UN proper shipping name:	ISOBUTYLENE
Transport hazard class(es):	2.1
Packing group:	Not applicable
Environmental hazards:	no
Special precautions for user:	None known

Transport in inland waterway vessel

UN number or ID number:	UN1055
UN proper shipping name:	ISOBUTYLENE
Transport hazard class(es):	2.1
Packing group:	Not applicable
Environmental hazards:	no
Type of inland waterway vessel:	G
Cargo tank design:	1
Cargo tank type:	1

Sea transport

IMDG

UN number or ID number:	UN 1055
UN proper shipping name:	ISOBUTYLENE
Transport hazard class(es):	2.1
Packing group:	Not applicable
Environmental hazards:	no Marine pollutant: NO
Special precautions for user:	EmS: F-D; S-U

Air transport

IATA/ICAO

UN number or ID number:	UN 1055
UN proper shipping name:	ISOBUTYLENE
Transport hazard class(es):	2.1
Packing group:	Not applicable
Environmental hazards:	No Mark as dangerous for the environment is needed
Special precautions for user:	None known

Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

15. Regulatory Information

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

Not applicable

16. Other Information

Full text of classifications, hazard symbols and hazard statements, if mentioned in section 2 or 3:

Flam. Gas	Flammable gases
Press. Gas	Gases under pressure

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.