SAFETY DATA SHEET

Based upon Regulation (EC) No 1907/2006, as amended by Regulation (EU) No 2015/830

isobutane 95%

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

1.1. Product identifier

Product name	: isobutane 95%
Synonyms	: 2-methylpropane; Aeron ®isobutan; isobutane; isobutane, liquefied, under pressure; propane, 2-methyl-
Registration number REACH	: 01-2119485395-27
Product type REACH	: Substance/mono-constituent
CAS number	: 75-28-5
EC index number	: 601-004-00-0
EC number	: 200-857-2
Molecular mass	: 58.12 g/mol
Formula	: C4H10

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

1.2.1 Relevant identified uses

Solvent
Fuel
Chemical raw material
Industrial use

1.2.2 Uses advised against

No uses advised against known

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet

BALCHEM NV
Westvaartdijk 85
B-1850 Grimbergen Belgium
☎ +32 2 251 60 87
+32 2 252 17 51
info.grimbergen@balchem.com

Manufacturer of the product

BALCHEM NV
Westvaartdijk 85
B-1850 Grimbergen Belgium
☎ +32 2 251 60 87
+32 2 252 17 51
info.grimbergen@balchem.com

1.4. Emergency telephone number

24h/24h (Telephone advice: English, French, German, Dutch) :
+32 14 58 45 45 (BIG)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
Flam. Gas	category 1	H220: Extremely flammable gas.
Press. Gas	Liquefied gas	H280: Contains gas under pressure; may explode if heated.

2.2. Label elements

Signal word Danger
H-statements

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

P-statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P381	In case of leakage, eliminate all ignition sources.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P403	Store in a well-ventilated place.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

May build up electrostatic charges: risk of ignition
Gas/vapour spreads at floor level: ignition hazard
Odour threshold is well above the exposure limit
May cause frostbites
Large spills/in enclosed spaces: risk of oxygen deficiency

SECTION 3: Composition/information on ingredients

3.1. Substances

Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark
isobutane 01-2119485395-27	75-28-5 200-857-2	C>95 %	Flam. Gas 1; H220 Press. Gas - Liquefied gas; H280	(1)(2)(10)	Constituent
butane 01-2119474691-32	106-97-8 203-448-7	C<5 %	Flam. Gas 1; H220 Press. Gas - Liquefied gas; H280	(1)(2)(10)	Impurity
propane 01-2119486944-21	74-98-6 200-827-9	C<5 %	Flam. Gas 1; H220 Press. Gas - Liquefied gas; H280	(1)(2)(10)	Impurity

(1) For H-statements in full: see heading 16
(2) Substance with a Community workplace exposure limit
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

General:
Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

After inhalation:
Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

After skin contact:
Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

After eye contact:
Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Cover eyes aseptically. Do not apply neutralizing agents. Take victim to an ophthalmologist.

After ingestion:
Not applicable.

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

4.2.1 Acute symptoms

After inhalation:
EXPOSURE TO HIGH CONCENTRATIONS: Headache. Nausea. Central nervous system depression. Dizziness. Narcosis. Coordination disorders. Disturbed motor response. Disturbances of consciousness. Respiratory difficulties.

After skin contact:
Frostbites.

After eye contact:
Redness of the eye tissue. Frostbites. Lacrimation.

After ingestion:
Not applicable.

4.2.2 Delayed symptoms
No effects known.

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

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:

Small fire: Quick-acting ABC powder extinguisher, Quick-acting BC powder extinguisher.

5.1.2 Unsuitable extinguishing media:

Small fire: Quick-acting CO2 extinguisher, Water (water can be used to control jet flame), Foam.

Major fire: Water (water can be used to control jet flame), Foam.

5.2. Special hazards arising from the substance or mixture

Upon combustion: CO and CO2 are formed. On heating: release of harmful/irritant gases/vapours.

5.3. Advice for firefighters

5.3.1 Instructions:

If no hazard for/from the surroundings: controlled burning. If hazardous substances are nearby: consider extinguishment. Extinguish only if gas supply/leak can be shut afterwards. Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistant risk of physical explosion.

5.3.2 Special protective equipment for fire-fighters:

Insulating gloves. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep upwind. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment. Avoid ingress of water in the containers.

6.1.1 Protective equipment for non-emergency personnel

See heading 8.2

6.1.2 Protective equipment for emergency responders

Insulating gloves. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus.

Suitable protective clothing

See heading 8.2

6.2. Environmental precautions

Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Tip the container on one side to stop the leakage. Try to reduce evaporation. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

Prevent evaporation by covering with: foam. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4. Reference to other sections

See heading 13.

SECTION 7: Handling and storage

The information in this section is based upon the risk analysis of the mixture. If applicable and available, SUMI's (Safe Use Mixture Information) are attached in annex. Always use the relevant SUMI that corresponds to your identified use.

7.1. Precautions for safe handling

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Gas/vapour heavier than air at 20°C. Observe normal hygiene standards.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Storage temperature: < 50 °C. Store in a cool area. Keep out of direct sunlight. Ventilation at floor level. Fireproof storeroom. Provide for an automatic sprinkler system. Provide for a tub to collect spills. Provide the tank with earthing. Under a shelter/in the open. Aboveground. Meet the legal requirements.

7.2.2 Keep away from:

Heat sources, ignition sources, combustible materials, oxidizing agents, (strong) acids, (strong) bases, highly flammable materials, peroxides, halogens.

7.2.3 Suitable packaging material:

Steel, stainless steel, monel steel, aluminium, copper.

7.2.4 Non suitable packaging material:

No data available

7.3. Specific end use(s)

If applicable and available, SUMI's (Safe Use Mixture Information) are attached in annex.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

Belgium

Hydrocarbures aliphatiques sous forme gazeuse: (Alcanes C1-C3)	Time-weighted average exposure limit 8 h	1000 ppm
	Short time value	980 ppm
	Short time value	2370 mg/m³

France

n-Butane	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	800 ppm
	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	1900 mg/m³

Germany

Butan	Time-weighted average exposure limit 8 h (TRGS 900)	1000 ppm
	Time-weighted average exposure limit 8 h (TRGS 900)	2400 mg/m³
Isobutan	Time-weighted average exposure limit 8 h (TRGS 900)	1000 ppm
	Time-weighted average exposure limit 8 h (TRGS 900)	2400 mg/m³
Propan	Time-weighted average exposure limit 8 h (TRGS 900)	1000 ppm
	Time-weighted average exposure limit 8 h (TRGS 900)	1800 mg/m³

UK

Butane	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	600 ppm
	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	1450 mg/m³
	Short time value (Workplace exposure limit (EH40/2005))	750 ppm
	Short time value (Workplace exposure limit (EH40/2005))	1810 mg/m³

USA (TLV-ACGIH)

Butane, all isomers	Short time value (TLV - Adopted Value)	1000 ppm

b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

If applicable and available it will be listed below.

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 Threshold values

PNEC

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Compartments	Value	Remark
		No data available

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is based upon the risk analysis of the mixture. If applicable and available, SUMI's (Safe Use Mixture Information) are attached in annex. Always use the relevant SUMI that corresponds to your identified use.

8.2.1 Appropriate engineering controls

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the concentration in the air regularly. Work under local exhaust/ventilation.

8.2.2 Individual protection measures, such as personal protective equipment

Observe normal hygiene standards. Do not eat, drink or smoke during work.

a) Respiratory protection:

High vapour/gas concentration: self-contained respirator.

b) Hand protection:

Insulated gloves.

- materials (good resistance)

Neoprene, polyurethane, leather.

c) Eye protection:

Protective goggles.

d) Skin protection:

Protective clothing.

8.2.3 Environmental exposure controls:

See headings 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Liquefied gas
Odour	Odourless
Odour threshold	Not applicable
Colour	Colourless
Particle size	Not applicable (gas)
Explosion limits	1.8 - 8.5 vol %
Flammability	Extremely flammable gas.
Log Kow	2.76 - 2.88 ; Experimental value
Dynamic viscosity	No data available
Kinematic viscosity	No data available
Melting point	No data available
Boiling point	-11.7 °C
Evaporation rate	No data available
Relative vapour density	No data available
Vapour pressure	2200 hPa ; 20 °C
Solubility	Water ; < 0.01 g/100 ml ; 20 °C
	Ethanol ; soluble
	Ether ; soluble
	Chloroform ; soluble
Relative density	0.56 ; 20 °C
Decomposition temperature	No data available
Auto-ignition temperature	460 °C
Flash point	-81 °C
Explosive properties	No chemical group associated with explosive properties
Oxidising properties	No chemical group associated with oxidising properties
pH	No data available

9.2. Other information

Absolute density	560 kg/m³ ; 20 °C

SECTION 10: Stability and reactivity

10.1. Reactivity

May build up electrostatic charges: risk of ignition. May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reacts with (strong) oxidizers: (increased) risk of fire/explosion.

10.4. Conditions to avoid

Precautionary measures

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks.

10.5. Incompatible materials

Combustible materials, oxidizing agents, (strong) acids, (strong) bases, highly flammable materials, peroxides, halogens.

10.6. Hazardous decomposition products

Upon combustion: CO and CO2 are formed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

11.1.1 Test results

Acute toxicity

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No (test)data available

As the substance is a gas, inhalation is the most likely route of exposure

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Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral						Data waiving	
Dermal						Data waiving	
Inhalation (gases)	LC50		1443 mg/l	15 minutes	Rat (male / female)	Experimental value	

As the substance is a gas, inhalation is the most likely route of exposure

Conclusion

Low acute toxicity by the inhalation route

Corrosion/irritation

isobutane 95%

No (test)data available

The liquid form can cause frostbites, typical for all liquefied gases

isobutane

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye						Data waiving	
Skin						Data waiving	

The liquid form can cause frostbites, typical for all liquefied gases

Conclusion

Not classified as irritating to the skin

Not classified as irritating to the eyes

Not classified as irritating to the respiratory system

Respiratory or skin sensitisation

isobutane 95%

No (test)data available

The study on skin sensitisation does not need to be conducted as the substance is a gas

isobutane

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin						Data waiving	
Inhalation (gases)						Data waiving	

The study on skin sensitisation does not need to be conducted as the substance is a gas

Conclusion

Not classified as sensitizing for skin

Not classified as sensitizing for inhalation

Specific target organ toxicity

isobutane 95%

No (test)data available

As the substance is a gas, inhalation is the most likely route of exposure

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Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral								Data waiving
Dermal								Data waiving
Inhalation (gases)	NOAEC systemic effects	OECD 422	9000 ppm		No adverse systemic effects	6 weeks (6h / day, 7 days / week)	Rat (male / female)	Experimental value
Inhalation (gases)	NOAEC systemic effects	OECD 422	21394 mg/m³ air		No adverse systemic effects	6 weeks (6h / day, 7 days / week)	Rat (male / female)	Experimental value

As the substance is a gas, inhalation is the most likely route of exposure

Conclusion

Not classified for subchronic toxicity

Mutagenicity (in vitro)

isobutane 95%

No (test)data available

isobutane

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 473	Human lymphocytes	No effect	Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value	

Mutagenicity (in vivo)

isobutane 95%

No (test)data available

isobutane

Result	Method	Exposure time	Test substrate	Organ	Value determination
Negative (Inhalation (gases))	OECD 474	13 weeks (6h / day, 5 days / week)	Rat (male / female)	Bone marrow	Read-across

Conclusion

Not classified for mutagenic or genotoxic toxicity

Carcinogenicity

isobutane 95%

No (test)data available

isobutane

Route of exposure	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Unknown								Data waiving

Conclusion

Not classified for carcinogenicity

Reproductive toxicity

isobutane 95%

No (test)data available

isobutane

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity (Inhalation (gases))	NOAEC	OECD 422	12000 ppm	6 weeks (6h / day, 7 days / week)	Rat (female)	No effect		Experimental value
	NOAEC	OECD 422	21641 mg/m³ air	6 weeks (6h / day, 7 days / week)	Rat (female)	No effect		Experimental value
Maternal toxicity (Inhalation (gases))	NOAEC	OECD 422	12000 ppm	6 weeks (6h / day, 7 days / week)	Rat (female)	No effect		Experimental value
	NOAEC	OECD 422	21641 mg/m³ air	6 weeks (6h / day, 7 days / week)	Rat (female)	No effect		Experimental value
Effects on fertility (Inhalation (gases))	NOAEC	OECD 422	3000 ppm	6 weeks (6h / day, 7 days / week)	Rat (male / female)	No effect		Experimental value
	NOAEC	OECD 422	7131 mg/m³ air	6 weeks (6h / day, 7 days / week)	Rat (male / female)	No effect		Experimental value

Conclusion

Not classified for reprotoxic or developmental toxicity

Toxicity other effects

isobutane 95%

No (test)data available

Chronic effects from short and long-term exposure

isobutane 95%

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Disturbances of heart rate. Dry/sore throat. Gastrointestinal complaints.

SECTION 12: Ecological information

12.1. Toxicity

isobutane 95%

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		9.89 mg/l	96 h	Pimephales promelas			QSAR
Acute toxicity crustacea	LC50		10.67 mg/l	48 h	Daphnia magna			QSAR
Toxicity algae and other aquatic plants	EC0		1.07 mg/l		Algae			QSAR
	EC50		7.15 mg/l	72 h	Algae			QSAR
Long-term toxicity fish	EC0		1.42 mg/l	768 h	Pimephales promelas			QSAR
Long-term toxicity aquatic crustacea	EC0		0.77 mg/l	504 h	Daphnia magna			QSAR

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	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		9.89 mg/l	96 h	Pimephales promelas			QSAR
Acute toxicity crustacea	LC50		10.67 mg/l	48 h	Daphnia magna			QSAR
Toxicity algae and other aquatic plants	EC50		7.15 mg/l	72 h	Algae			QSAR
Long-term toxicity fish	NOEC		1.42 mg/l	768 h	Pimephales promelas			QSAR
Long-term toxicity aquatic crustacea	NOEC		0.77 mg/l	504 h	Daphnia magna			QSAR

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2. Persistence and degradability

isobutane 95%

Half-life soil (t1/2 soil)

Method	Value	Primary degradation/mineralisation	Value determination
	Not applicable (gas)		

isobutane

Biodegradation water

Method	Value	Duration	Value determination
	72.6 %; Oxygen consumption	35 day(s)	Literature study

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
Other	1906 day(s)	500000 /cm³	Calculated value

Half-life soil (t1/2 soil)

Method	Value	Primary degradation/mineralisation	Value determination
			Not applicable (gas)

Conclusion

Readily biodegradable in water

12.3. Bioaccumulative potential

isobutane 95%

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF		20 - 52		Pisces	QSAR

Log Kow

Method	Remark	Value	Temperature	Value determination
		2.76 - 2.88		Experimental value

isobutane

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF		20 - 52		Pisces	QSAR

Log Kow

Method	Remark	Value	Temperature	Value determination
		2.8	20 °C	Experimental value

Conclusion

Low potential for bioaccumulation (BCF < 500)

12.4. Mobility in soil

Not applicable (gas)

12.5. Results of PBT and vPvB assessment

Substance does not meet the criteria of PBT, nor the criteria of vPvB according to Annex XIII of Regulation (EC) No 1907/2006, so is neither PBT nor vPvB.

12.6. Other adverse effects

isobutane 95%

Fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

SECTION 13: Disposal considerations

The information in this section is based upon the risk analysis of the mixture. If applicable and available, SUMI's (Safe Use Mixture Information) are attached in annex. Always use the relevant SUMI that corresponds to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).
16 05 04* (gases in pressure containers and discarded chemicals: gases in pressure containers (including halons) containing hazardous substances).
Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2 Disposal methods

Refer to manufacturer/supplier for information on recovery/ recycling. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment.

13.1.3 Packaging/Container

European Union

Waste material code packaging (Directive 2008/98/EC).
15 01 10* (packaging containing residues of or contaminated by dangerous substances).

SECTION 14: Transport information

Road (ADR)

14.1. UN number

UN number	1969

14.2. UN proper shipping name

Proper shipping name	Isobutane

14.3. Transport hazard class(es)

Hazard identification number	23
Class	2
Classification code	2F

14.4. Packing group

Labels	2.1

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	392
Special provisions	657
Special provisions	662
Special provisions	674
Limited quantities	none.

Rail (RID)

14.1. UN number

UN number	1969

14.2. UN proper shipping name

Proper shipping name	Isobutane

14.3. Transport hazard class(es)

Hazard identification number	23
Class	2
Classification code	2F

14.4. Packing group

Labels	2.1 (+13)

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	657
Special provisions	392
Special provisions	662
Special provisions	674
Limited quantities	none.

Inland waterways (ADN)

14.1. UN number

UN number	1969

14.2. UN proper shipping name

Proper shipping name	Isobutane

14.3. Transport hazard class(es)

Class	2
Classification code	2F

14.4. Packing group

Labels	2.1

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	392
Special provisions	657
Special provisions	662
Special provisions	674
Limited quantities	none

Sea (IMDG/IMSBC)

14.1. UN number

UN number	1969

14.2. UN proper shipping name

Proper shipping name	isobutane

14.3. Transport hazard class(es)

Class	2.1

14.4. Packing group

Labels	2.1

14.5. Environmental hazards

Marine pollutant	-
Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	392
Limited quantities	none.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Annex II of MARPOL 73/78	Not applicable

Air (ICAO-TI/IATA-DGR)

14.1. UN number

UN number	1969

14.2. UN proper shipping name

Proper shipping name	Isobutane

14.3. Transport hazard class(es)

Class	2.1

14.4. Packing group

Packing group	
Labels	2.1

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	A1

Passenger and cargo transport

Limited quantities: maximum net quantity per packaging	

SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
100 %	

REACH Annex XVII - Restriction

Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
· isobutane	Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.	1. Shall not be used in: — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects, 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they: — can be used as fuel in decorative oil lamps for supply to the general public, and, — present an aspiration hazard and are labelled with H304, 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN). 5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: “Keep lamps filled with this liquid out of the reach of children”; and, by 1 December 2010, “Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life- threatening lung damage”; b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: “Just a sip of grill lighter may lead to life threatening lung damage”; c) lamp oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010. 6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled H304, intended for supply to the general public. 7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.'
· isobutane	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to that Regulation or not.	1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following: — metallic glitter intended mainly for decoration, — artificial snow and frost, — “whoopee” cushions, — silly string aerosols, — imitation excrement, — horns for parties, — decorative flakes and foams, — artificial cobwebs, — stink bombs. 2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: “For professional users only”. 3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/ 324/EEC. 4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.

National legislation Belgium

No data available

National legislation The Netherlands

Waterbezwaarlijkheid	B (2); Algemene Beoordelingsmethodiek (ABM)

National legislation France

No data available

National legislation Germany

WGK	nwg; Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV) - 18. April 2017
TA-Luft	5.2.5

National legislation United Kingdom

No data available

Other relevant data

No data available

15.2. Chemical safety assessment

A chemical safety assessment has been performed.

SECTION 16: Other information

Full text of any H-statements referred to under heading 3:

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

(*)	INTERNAL CLASSIFICATION BY BIG
ADI	Acceptable daily intake
AOEL	Acceptable operator exposure level
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration
STP	Sludge Treatment Process
vPvB	very Persistent & very Bioaccumulative

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union, Switzerland, Iceland, Norway and Liechtenstein. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.