Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

(This safety data sheet is for information only as it does not comply with the official language requirements of Article 31 (5) of REACH nor does it provide the national information in sections 8 and 15 as specified in Annex II of REACH.)

n-Butane

Version number: 3.0
Replaces version of: 2023-05-17 (2)

Revision: 2023-06-09
First version: 2022-08-19

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

1.1 Product identifier

Identification of the substance	butane
Trade name	**n-Butane**
Registration number (REACH)	This information is not available.
EC number	203-448-7
Index number in CLP Annex VI	601-004-00-0
CAS number	106-97-8

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

Relevant identified uses	General use

1.3 Details of the supplier of the safety data sheet

PROGAS GmbH & Co KG
Westfalendamm 84-86
D-44141 Dortmund
Germany

Website: www.progas-aerosol.de

Tech. Service:
PROGAS GmbH & Co. KG
Hansastraße 54-56
30419 Hannover
Deutschland

Telephone: ++49 (0) 511-97996-14
Telefax: ++49 (0) 511-97996-30

e-mail (competent person)	sdb@csb-compliance.com

Please do not use this e-mail address to ask for the latest safety data sheet. For this purpose contact PROGAS GmbH & Co KG.

National contact	e-Mail: michael.kick@progas.de

1.4 Emergency telephone number

Emergency information	+49 (0) 511-97996-62 (24h)

As above or nearest toxicological information centre.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification				
Section	**Hazard class**	**Category**	**Hazard class and category**	**Hazard statement**
2.2	flammable gas	1A	Flam. Gas 1A	H220
2.5	gas under pressure	L	Press. Gas L	H280

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

May displace oxygen and cause rapid suffocation.
Victim may not be aware of asphyxiation.
Contains gas under pressure; may explode if heated.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word danger

Pictograms

GHS02

Hazard statements

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

Precautionary statements

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

Additional labelling requirements see section 15 of the safety data sheet

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Not listed.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance butane

Identifiers

CAS No 106-97-8

EC No 203-448-7

Index No 601-004-00-0

Molecular formula C4H10

Molar mass 58.12 $^{g}/_{mol}$

Purity >95 %

Impurities and additives

Name of substance	Identifier	Wt%
isobutane	CAS No 75-28-5 EC No 200-857-2	< 3
propane	CAS No 74-98-6 EC No 200-827-9	< 2
pentane	CAS No 109-66-0 EC No 203-692-4	< 1
ethane	CAS No 74-84-0 EC No 200-814-8	< 0.1
methane	CAS No 74-82-8 EC No 200-812-7	< 0.1

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Self-protection of the first aider.
Remove affected person from the danger area and lay down.
Do not leave affected person unattended.
Take off immediately all contaminated clothing.
In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.
Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.
If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

Thaw frosted parts with lukewarm water. Do not rub affected area.
Call a physician immediately.

Following eye contact

Thaw frosted parts with lukewarm water. Do not rub affected area.
Remove contact lenses, if present and easy to do. Continue rinsing.
Call a physician immediately.

Following ingestion

Rinse mouth. Do not induce vomiting.
Get medical advice/attention if you feel unwell.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

May displace oxygen and cause rapid suffocation.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

water spray, alcohol resistant foam, fire extinguishing powder

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible.
Hazardous decomposition products: Section 10.
Contact with the product can cause burns and/or frostbite.
Contains gas under pressure; may explode if heated.

Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

Keep containers cool with water spray.
In case of fire and/or explosion do not breathe fumes.
Co-ordinate firefighting measures to the fire surroundings.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.
In case of fire: Stop leak if safe to do so.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Vapours may form explosive mixtures with air.
Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

Special protective equipment for firefighters

wear self-contained breathing apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.
Ventilate affected area.
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.
Self-contained breathing apparatus.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Other information relating to spills and releases

Ventilate affected area.
Removal of ignition sources.

6.4 Reference to other sections

Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes.
Do not breathe vapour/spray.
Provision of sufficient ventilation.
Use only outdoors or in a well-ventilated area.

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Keep away from sources of ignition - No smoking.

Specific notes/details

None.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

7.2 Conditions for safe storage, including any incompatibilities

Flammability hazards

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharge.
Protect from sunlight.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

heat

Consideration of other advice

Keep away from food, drink and animal feeding stuffs.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Keep container tightly closed and in a well-ventilated place.
Keep cool. Protect from sunlight.

Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)
This information is not available

Relevant DNELs of components of the mixture

Name of sub-stance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
pentane	109-66-0	DNEL	3,000 mg/m³	human, inhalat-ory	worker (industry)	chronic - system-ic effects
pentane	109-66-0	DNEL	432 mg/kg bw/day	human, dermal	worker (industry)	chronic - system-ic effects

8.2 Exposure controls

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Wear cold insulating gloves/face shield/eye protection.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
Self-contained breathing apparatus.

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	gaseous (liquefied)
Colour	colourless
Odour	characteristic
Melting point/freezing point	-159.4 °C
Boiling point or initial boiling point and boiling range	-0.5 °C at 1,013 hPa

Flammability	flammable gas in accordance with GHS criteria
Lower and upper explosion limit	1.4 vol% - 9.4 vol%
Flash point	-87 °C at 1,013 hPa
Auto-ignition temperature	472 °C
Decomposition temperature	not relevant
pH (value)	not determined
Viscosity	not relevant (gaseous)
Solubility(ies)	
Water solubility	61.2 $^{mg}/_{l}$ at 25 °C
Partition coefficient n-octanol/water (log value)	1.09 (pH value: 7, 20 °C)
Vapour pressure	2 – 2.4 Pa at 20 °C
Density and/or relative density	
Density	0.58 $^{g}/_{cm^3}$ at 20 °C
Relative vapour density	this information is not available
Particle characteristics	not relevant (gaseous)

9.2 Other information

Information with regard to physical hazard classes	there is no additional information
Other safety characteristics	
Temperature class (EU, acc. to ATEX)	T3 (maximum permissible surface temperature on the equipment: 200°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

Risk of ignition.

If heated:

Danger of bursting container.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Contains gas under pressure; may explode if heated.

Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Protect from sunlight.

10.5 Incompatible materials

oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgement (weight of evidence determination).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Skin corrosion/irritation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Serious eye damage/eye irritation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory or skin sensitisation
Skin sensitisation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory sensitisation

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Carcinogenicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Reproductive toxicity

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

Asphyxiant gas, may displace oxygen and cause rapid suffocation.

Endocrine disrupting properties

Not listed.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Based on available data, the classification criteria are not met.

Endpoint	Exposure time	Value	Species	Method
LC50	48 h	16.33 $^{mg}/_{l}$	aquatic invertebrates	Qsar
LC50	96 h	24.11 $^{mg}/_{l}$	fish	Qsar
EC50	96 h	7.71 $^{mg}/_{l}$	green algae	(Q)SAR

Aquatic toxicity (chronic)

No data available.

12.2 Persistence and degradability

Biodegradation

The substance is readily biodegradable.

Persistence

No data available.

12.3 Bioaccumulative potential

n-octanol/water (log KOW) 1.09 (pH value: 7, 20 °C)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not listed.

12.7 Other adverse effects

Data are not available.

Global warming potential	4

Remarks

Wassergefährdungsklasse, WGK (water hazard class): nwg

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN	UN1011
IMDG-Code	UN1011
ICAO-TI	UN1011

14.2 UN proper shipping name

ADR/RID/ADN	BUTANE
IMDG-Code	BUTANE
ICAO-TI	Butane

14.3 Transport hazard class(es)

ADR/RID/ADN	2 (2.1)
IMDG-Code	2.1
ICAO-TI	2.1

14.4 Packing group -

14.5 Environmental hazards -

14.6 Special precautions for user -

14.7 Maritime transport in bulk according to IMO instruments -

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) Additional information

Particulars in the transport document	UN1011, BUTANE, 2.1, (B/D)
Classification code	2F
Danger label(s)	2.1

Special provisions (SP)	652(ADR), 657, 392, 662, 674
Excepted quantities (EQ)	E0
Limited quantities (LQ)	0
Transport category (TC)	2
Tunnel restriction code (TRC)	B/D
Hazard identification No	23

European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) Additional information

Number of cones/blue lights	1

International Maritime Dangerous Goods Code (IMDG) Additional information

Marine pollutant	-
Danger label(s)	2.1

Special provisions (SP)	392
Excepted quantities (EQ)	E0
Limited quantities (LQ)	0
EmS	F-D, S-U
Stowage category	E

International Civil Aviation Organization (ICAO-IATA/DGR) Additional information

Danger label(s)	2.1

Special provisions (SP)	A1
Excepted quantities (EQ)	E0

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

Name	Name acc. to inventory	CAS No	Restriction
butane	flammable / pyrophoric	-	R40

Legend

R40 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.

Legend

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 (2).
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.

List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

Not listed.

Seveso Directive

2012/18/EU (Seveso III)				
No	**Dangerous substance/hazard categories**	**Qualifying quantity (tonnes) for the application of lower and upper-tier requirements**		**Notes**
P2	flammable gases	10	50	45)

Notation

45) flammable gases, category 1 or 2

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Not listed.

Regulation on the marketing and use of explosives precursors

Not listed.

Regulation on drug precursors

Not listed.

Regulation on substances that deplete the ozone layer (ODS)

Not listed.

Regulation concerning the export and import of hazardous chemicals (PIC)

Not listed.

Regulation on persistent organic pollutants (POP)

Not listed.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance by the supplier.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)
1.3	National contact: e-Mail: frank.grosser@progas.de	National contact: e-Mail: michael.kick@progas.de

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008

Abbr.	Descriptions of used abbreviations
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
SVHC	Substance of Very High Concern
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
Regulation (EC) No. 1907/2006 (REACH).

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

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

Responsible for the safety data sheet

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Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.