

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

1.1. Product identifier

Product form	: Substance
Name	: R-600a (Isobutane)
EC Index-No.	: 601-004-00-0
EC-No.	: 200-857-2
CAS-No.	: 75-28-5
REACH registration No.	: 01-2119485395
Product code	: 100005600

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Refrigerant

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Dehon Service SAS
 26 Avenue du Petit Parc
 94683 VINCENNES Cedex
 France
 T 01 43 98 75 00, F 01 43 98 21 51
ContactFDS@climalife.dehon.com

Other

Climalife Kft Budepesta sucursală Bucuresti Romania
 Bulevardul Hristo Botev, Nr. 28,
 Biroul NR 4, Modulul I
 Bucuresti Sectorul 3
 Romania
ContactFDS@climalife.dehon.com

Other

Dehon Kälte-Fachvertriebs GmbH
 Robert-Bosch-Strasse 14
 40668 MEERBUSCH
 Germany
 T 00 49 2150 7073 0 , F 00 49 2150 7073 17
ContactFDS@climalife.dehon.com

Other

Dehon Service Belgium s.a/n.v.
 Avenue Carton de Wiart, 79
 1090 Bruxelles
 Belgium
 T 00 32 2 421 01 70, F 00 32 2 426 96 62
ContactFDS@climalife.dehon.com

Other

Friogas sa
 Poligono Industrial SEPES
 Parcela 10
 46500 SAGUNTO (Valencia)
 Spain
 T 00 34 9 6 266 36 32, F 00 34 9 6 266 50 25
ContactFDS@climalife.dehon.com

Other

Other

Climalife Hongrie Kft
 Villányi út 47
 1118 Budaörs
 Hungary
 T (36) 23 431 660, F (36) 23 431 661
ContactFDS@climalife.dehon.com

Other

Climalife Supplied by Inventec Performance Chemicals Italia SRL
 Via del Lavoro, 10/G
 20874 Busnago MB
 Italia
 T +39 39-5973480, F +39 39-5973490
ContactFDS@climalife.dehon.com

Other

Dehon nordic service
 Östra Hamngatan 50B 3tr
 41109 GÖTEBORG
 Sweden
 T 00 46 735 01 90 50
ContactFDS@climalife.dehon.com

Other

Dehon Service Nerderland B.V.
 Van Konijnenburgweg 84
 NL-4612 PL Bergen Op Zoom
 Netherlands
 T 00 31 164 212 830, F 00 31 164 212 831
ContactFDS@climalife.dehon.com

Other

Galco s.a/n.v.
 Avenue Carton de Wiart, 79
 1090 BRUSSELS
 Belgium
 T 00 32 2 421 01 84 , F 00 32 2 421 01 84 / 00 32 2 425 38 12
ContactFDS@climalife.dehon.com

Other

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

IDS Refrigeration Limited
22 Apex Court, Woodlands, Bradley Stoke
BS32 4JT Bristol
United Kingdom
T 00 44 1179 802520, F 00 44 1179 802521
ContactFDS@climalife.dehon.com

Prochimac SA
ZI Petits Champs 15
CH-1400 Yverdon-les-Bains
Switzerland
T 00 41 32 727 36 00, F 00 41 32 727 36 19
ContactFDS@climalife.dehon.com

1.4. Emergency telephone number

Emergency number : +33 (0) 1 72 11 00 03

Country/Area	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH	0344 892 0111	Only for healthcare professionals

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flam. Gas 1A H220

Press. Gas (Liq.) H280

Full text of hazard classes, H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H220 - Extremely flammable gas.

H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP) :

P210 - Keep away from heat, open flames, hot surfaces, sparks. No smoking.

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 - In case of leakage, eliminate all ignition sources.

P403 - Store in a well-ventilated place.

2.3. Other hazards

Other hazards which do not result in classification : May cause suffocation by reducing oxygen available for breathing. Contact with the liquid the may cause cold burns/frostbite.

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : R-600a (Isobutane)
CAS-No. : 75-28-5
EC-No. : 200-857-2
EC Index-No. : 601-004-00-0

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8))	CAS-No.: 75-28-5 EC-No.: 200-857-2 EC Index-No.: 601-004-00-0 REACH-no: 01-2119485395-27	> 95	Flam. Gas 1A, H220 Press. Gas (Liq.), H280

Full text of H- and EUH-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.

First-aid measures after skin contact : In the event of contact with the liquid: treat resulting frostbite as a burn. Wash skin thoroughly with mild soap and water. Take off immediately all contaminated clothing. If skin burns appear, call a doctor immediately.

First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum).

First-aid measures after ingestion : Rinse mouth out with water. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

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

Symptoms/effects after inhalation : Dizziness, headaches, nausea.

Symptoms/effects after skin contact : Burns.

Symptoms/effects after eye contact : Tingling sensation. Lacrimation. Rednesses.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Carbon dioxide. Foam. Dry powder.

Unsuitable extinguishing media : Strong water jet.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Extremely flammable gas. Heating will cause a rise in pressure with a risk of bursting. The vapours are denser than air and may travel along the ground. Distance ignition possible.

5.3. Advice for firefighters

Firefighting instructions : Cool down the containers exposed to heat with a water spray. Close the valve if possible.

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Protection during firefighting : Impermeable boots and protective equipment. Self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop the leak. Evacuate the danger area. Avoid contact with skin and eyes. Do not breathe smoke. Only qualified personnel equipped with suitable protective equipment may intervene. Remove all sources of ignition.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. In case of important spillage : Local evacuation is necessary (for people in close proximity to the spillage area).

6.2. Environmental precautions

Control the vapours with a fine water spray.

6.3. Methods and material for containment and cleaning up

For containment : Ventilate spillage area.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Use non-sparking tools. Earth the equipment used to transfer the product. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Avoid contact with skin and eyes.

Hygiene measures : Always wash hands after handling the product. Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep away from ignition sources. Store in original container.

Incompatible products : Oxidizing materials. Oxidizing materials. Strong bases.

Packaging materials : Carbon steel.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

EU - Indicative Occupational Exposure Limit (IOEL)

IOEL TWA	1450 mg/m ³
	600 ppm

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

IOEL STEL	1810 mg/m ³
	750 ppm

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

No additional information available

8.2.2. Personal protection equipment

8.2.2.1. Eye and face protection

Eye protection:

Safety glasses with side shields

8.2.2.2. Skin protection

Skin and body protection:

Protective non-flammable and resistant to chemical penetration clothing

Hand protection:

Nitrile-rubber protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

If the occupational exposure limit is exceeded: Gas mask with filter type AX. In a confined area : Self-contained breathing apparatus

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Colour	: Colourless.
Molecular mass	: 58 g/mol
Odour	: Hydrocarbon-like.
Odour threshold	: Not available
Melting point	: -159 °C
Freezing point	: Not applicable
Boiling point	: -11.7 °C
Flammability	: Extremely flammable gas.
Explosive properties	: Not explosive.
Oxidising properties	: Non oxidizing.
Lower explosion limit	: 1.8 vol %
Upper explosion limit	: 8.4 vol %

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Flash point	: -87 °C
Auto-ignition temperature	: 460 °C
Decomposition temperature	: Not available
pH	: Not applicable
Viscosity, kinematic	: 269.643 mm ² /s
Viscosity, dynamic	: 0.151 Pa·s (25°C)
Solubility	: Insoluble in water. Water: 0.0008 %
Partition coefficient n-octanol/water (Log Kow)	: 2.88
Vapour pressure	: 2.2 bar (20 °C)
Vapour pressure at 50°C	: Not available
Critical pressure	: 36.29 bar
Density	: 0.56 g/cm ³ (20 °C)
Relative density	: Not applicable
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Critical temperature : 134.7 °C

9.2.2. Other safety characteristics

Gas group : Press. Gas (Liq.)

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

No information available.

10.4. Conditions to avoid

May explode or ignite : on contact with incompatible materials.

10.5. Incompatible materials

Oxidizing materials. Combustible materials. Strong bases.

10.6. Hazardous decomposition products

On thermal decomposition (pyrolysis), releases : Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

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

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Additional information	: Asphyxiating

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

LC50 Inhalation - Rat	658 mg/l/4h
LC50 Inhalation - Rat [ppm]	260000 ppm (Mouse, Male, 4 h)

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Skin corrosion/irritation	: Not classified
Additional information	: Contact with the liquid the may cause cold burns/frostbite
Serious eye damage/irritation	: Not classified
Additional information	: Contact with the liquefied gas may cause severe ocular lesions
Respiratory or skin sensitisation	: No sensitizing effect known
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

NOAEC (inhalation, rat, 28 days)	21.934 mg/l (Rat (Female, Male), Inhalation (Gas) , daily)
----------------------------------	--

Aspiration hazard : Not applicable

R-600a (Isobutane) (75-28-5)

Viscosity, kinematic	269.643 mm ² /s
----------------------	----------------------------

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

Viscosity, kinematic	269.643 mm ² /s
----------------------	----------------------------

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

11.2.2. Other information

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

LC50 - Fish [1]	27.98 mg/l (estimated, QSAR)
-----------------	------------------------------

EC50 - Crustacea [1]	16.33 mg/l (estimated, QSAR)
----------------------	------------------------------

EC50 72h - Algae [1]	8.57 mg/l (estimated, QSAR)
----------------------	-----------------------------

12.2. Persistence and degradability

R-600a (Isobutane) (75-28-5)

Persistence and degradability	Rapidly degradable
-------------------------------	--------------------

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

Persistence and degradability	{0} % biodegradation after {1} days.
-------------------------------	--------------------------------------

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

12.3. Bioaccumulative potential

R-600a (Isobutane) (75-28-5)

Partition coefficient n-octanol/water (Log Kow) 2.88

Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

Partition coefficient n-octanol/water (Log Kow) 2.88

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component

Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8)) (75-28-5)

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

12.7. Other adverse effects

Additional information : Global warming potential (GWP) 3

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Refer to manufacturer or supplier for information on recovery or recycling.
Additional information : The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal.

SECTION 14: Transport information





In accordance with ADR / IMDG / IATA / RID

ADR	IMDG	IATA	RID
14.1. UN number or ID number			
UN 1969	UN 1969	UN 1969	UN 1969
14.2. UN proper shipping name			
ISOBUTANE	ISOBUTANE	Isobutane	ISOBUTANE
Transport document description			
UN 1969 ISOBUTANE, 2.1, (B/D)	UN 1969 ISOBUTANE, 2.1	UN 1969 Isobutane, 2.1	UN 1969 ISOBUTANE, 2.1
14.3. Transport hazard class(es)			
2.1	2.1	2.1	2.1

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

ADR	IMDG	IATA	RID
			

14.4. Packing group

Not applicable

Not applicable

Not applicable

Not applicable

14.5. Environmental hazards

Dangerous for the environment: No

Dangerous for the environment: No
Marine pollutant: No

Dangerous for the environment: No

Dangerous for the environment: No

No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR) : 2F
Special provisions (ADR) : 657, 660, 662
Limited quantities (ADR) : 0
Tank code (ADR) : PxBN(M)
Transport category (ADR) : 2
Hazard identification number (Kemler No.) : 23
Orange plates :

23
1969

Tunnel restriction code (ADR) : B/D
EAC code : 2YE

Transport by sea

EmS-No. (Fire) : F-D
EmS-No. (Spillage) : S-U

Air transport

PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : Forbidden
PCA max net quantity (IATA) : Forbidden
CAO packing instructions (IATA) : 200
CAO max net quantity (IATA) : 150kg
Special provisions (IATA) : A1

Rail transport

Special provisions (RID) : 657, 660, 662
Limited quantities (RID) : 0
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE3
Hazard identification number (RID) : 23

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)	
Reference code	Applicable on
40.	R-600a (Isobutane) ; Isobutane (containing < 0,1 % 1,3-butadiene (203-450-8))

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Dual-Use Regulation (428/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Indication of changes			
Section	Changed item	Change	Comments
9	Physico-chemical hazard data	Modified	
11	Additional information	Added	
12.	Additional information	Added	
15	Additional information	Added	

Full text of H- and EUH-statements:

Flam. Gas 1A	Flammable gases, Category 1A
H220	Extremely flammable gas.

R-600a (Isobutane)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Full text of H- and EUH-statements:

H280	Contains gas under pressure; may explode if heated.
Press. Gas (Liq.)	Gases under pressure : Liquefied gas

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.