






<b>ISOBUTANE</b>		<b>0901</b> November 1998	
<b>CAS No: 75-28-5</b> RTECS No: TZ4300000 UN No: 1969 EC No: 601-004-00-0		2-Methylpropane 1,1-Dimethylethane Trimethylmethane $C_4H_{10} / (CH_3)_2CHCH_3$ Molecular mass: 58.1	
TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
<b>FIRE</b>	Extremely flammable.	NO open flames, NO sparks, and NO smoking.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with water spray.
<b>EXPLOSION</b>	Gas/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding) if in liquid state.	In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.
EXPOSURE			
<b>Inhalation</b>	Shortness of breath. Suffocation.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
<b>Skin</b>	ON CONTACT WITH LIQUID: FROSTBITE.	Cold-insulating gloves. Protective clothing.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.
<b>Eyes</b>		Safety goggles, face shield.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
<b>Ingestion</b>		Do not eat, drink, or smoke during work.	
SPILLAGE DISPOSAL		PACKAGING & LABELLING	
Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. NEVER direct water jet on liquid. (Extra personal protection: filter respirator for organic vapours of low boiling compounds).		F+ Symbol R: 12 S: (2-)9-16 Note: C UN Hazard Class: 2.1	
EMERGENCY RESPONSE		STORAGE	
Transport Emergency Card: TEC (R)-501 NFPA Code: H1; F4; R0		Fireproof. Cool.	
    		Prepared in the context of cooperation between the International Programme on Chemical Safety and the European Commission © IPCS 2000 <b>SEE IMPORTANT INFORMATION ON THE BACK.</b>	

## IMPORTANT DATA

**Physical State; Appearance**

COLOURLESS COMPRESSED LIQUEFIED GAS, WITH CHARACTERISTIC ODOUR.

**Physical dangers**

The gas is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.

**Chemical dangers**

Reacts with strong oxidants, acetylene, halogens and nitrogen oxides causing fire and explosion hazard.

**Occupational exposure limits**

TLV not established.

MAK: 1000 ppm; 2350 mg/m<sup>3</sup>; IV (1998)

**Routes of exposure**

The substance can be absorbed into the body by inhalation.

**Inhalation risk**

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

**Effects of short-term exposure**

Rapid evaporation of the liquid may cause frostbite. The substance may cause effects on the cardiovascular system, resulting in impaired functions and respiratory failure. Exposure at high level may result in death.

## PHYSICAL PROPERTIES

Boiling point: -12°C

Melting point: -160°C

Relative density (water = 1): 0.6 (when liquid)

Solubility in water, g/100 ml at 20°C: none

Vapour pressure, kPa at 20°C: 304

Relative vapour density (air = 1): 2

Flash point: Flammable Gas

Auto-ignition temperature: 460°C

Explosive limits, vol% in air: 1.8-8.4

Octanol/water partition coefficient as log Pow: 2.8

## ENVIRONMENTAL DATA

## NOTES

Turn leaking cylinder with the leak up to prevent escape of gas in liquid state. The measures mentioned in section PREVENTION are applicable to production, filling of cylinders, and storage of the gas.

## ADDITIONAL INFORMATION

## LEGAL NOTICE

Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information

# 国際化学物質安全性カード

イソブタン

ICSC番号:0901

<p>イソブタン                  ISOBUTANE                  2-Methylpropane                  1,1-Dimethylethane                  Trimethylmethane                  (圧力容器)  <math>C_4H_{10} / (CH_3)_2CHCH_3</math>                  分子量:58.1</p>
<p>CAS登録番号:75-28-5                  RTECS番号:TZ4300000                  ICSC番号:0901                  国連番号:1969                  EC番号:601-004-00-0</p>

災害／ 暴露のタイプ	一次災害／ 急性症状	予防	応急処置/ 消火薬剤
火災	引火性がきわめて高い。	裸火禁止、火花禁止、禁煙。	供給源を遮断する;それが不可能でかつ周辺に危険が及ばなければ、燃え尽きるにまかせ;その他の場合は水噴霧を用いて消火する。
爆発	気体/空気の混合気体は爆発性である。	密閉系、換気、防爆型電気および照明設備。液状であれば、帯電を防ぐ(例えばアースを使用)。	火災時:圧力容器に水を噴霧して冷却する。安全な場所から消火作業を行う。
身体への暴露			
吸入	息切れ、窒息。	換気、局所排気、または呼吸用保護具。	新鮮な空気、安静。医療機関に連絡する。
皮膚	液体に触れた場合:凍傷	保温用手袋、保護衣。	凍傷の場合:多量の水で洗い流し、衣服は脱がせない。医療機関に連絡する。
眼		安全ゴーグル、顔面シールド。	数分間多量の水で洗い流し(できればコンタクトレンズをはずして)、医師に連れて行く。
経口摂取		作業中は飲食、喫煙をしない。	

漏洩物処理	貯蔵	包装・表示
<ul style="list-style-type: none"> <li>・危険区域から立ち退く!</li> <li>・専門家に相談する!</li> <li>・換気。</li> <li>・すべての発火源を取り除く。</li> <li>・液体に向けて水を噴射してはならない。</li> <li>・(特別個人用保護具:低沸点化合物の有機ガス用フィルター付マスク)</li> </ul>	<ul style="list-style-type: none"> <li>・耐火設備(条件)。</li> <li>・涼しい場所。</li> </ul>	<ul style="list-style-type: none"> <li>・EU分類</li> <li>記号:F+</li> <li>R:12</li> <li>S:2-9-16</li> <li>Note:C</li> <li>・国連危険物分類(UN Haz Class):</li> <li>2.1</li> </ul>

重要データは次ページ参照

ICSC番号:0901	Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities © IPCS CEC 1993
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# 国際化学物質安全性カード

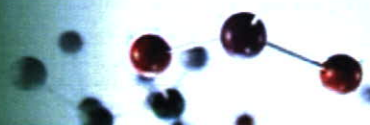
イソブタン

ICSC番号:0901

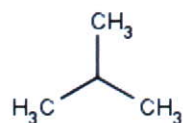
<b>重 要 デ ー タ</b>	<p><b>物理的状态; 外観:</b> 特徴的な臭気のある、無色の圧縮液化ガス</p> <p><b>物理的危険性:</b> この気体は空気より重く、地面あるいは床に沿って移動することがある; 遠距離引火の可能性はある。流動、攪拌などにより、静電気が発生することがある。</p> <p><b>化学的危険性:</b> 強酸化剤、アセチレン、ハロゲン、窒素酸化物と反応し、火災や爆発の危険をもたらす。</p> <p><b>許容濃度:</b> TLV は設定されていない。</p>	<p><b>暴露の経路:</b> 体内への吸収経路: 吸入</p> <p><b>吸入の危険性:</b> 容器を開放すると、空気中でこの気体はきわめて急速に有害濃度に達する。</p> <p><b>短期暴露の影響:</b> この液体が急速に気化すると、凍傷を起こすことがある。心血管系に影響を与え、機能障害や呼吸不全を生じることがある。高濃度の場合、死に至ることがある。</p> <p><b>長期または反復暴露の影響:</b></p>
<b>物理的性質</b>	<ul style="list-style-type: none"> <li>・沸点: -12°C</li> <li>・融点: -160°C</li> <li>・比重(水=1): 0.6 (液体)</li> <li>・水への溶解性: 溶けない</li> </ul>	<ul style="list-style-type: none"> <li>・蒸気圧: 304 kPa(20°C)</li> <li>・相対蒸気密度(空気=1): 2</li> <li>・引火点: 引火性ガス</li> <li>・発火温度: 460°C</li> <li>・爆発限界: 1.8~8.4 vol%(空気中)</li> <li>・log Pow (オクタノール/水分配係数): 2.8</li> </ul>
<b>環境に関するデータ</b>		
<b>注</b>		
<p>・圧力容器が漏出しているときは、気体が液状で漏れるのを防ぐため、洩れ口を上にする。</p> <p>・「予防」の項で述べた対策は、この気体の製造、圧力容器への充填、貯蔵にも適用できる。</p> <p style="text-align: center;">Transport Emergency Card(輸送時応急処理カード): TEC(R)-501 NFPA(米国防火協会)コード: H(健康危険性)1; F(燃焼危険性)4; R(反応危険性)0;</p>		
<b>付加情報</b>		
<p>ICSC番号:0901 原案作成日:1998.11</p>		<p>イソブタン</p>
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国立医薬品食品衛生研究所



## Full Record

**Isobutane**  
**RN: 75-28-5****Structure  
Descriptors****InChI**

InChI=1/C4H10/c1-4(2)3/h4H,1-3H3

[Download](#) | [View Full InChI](#)**Smiles**

C(C)(C)C

[Download](#)**Names and  
Synonyms****Name of Substance**

- [i](#) 2-Methylpropane
- [i](#) Isobutane
- [i](#) Propane, 2-methyl-

**Synonyms**

- [i](#) 1,1-Dimethylethane
- [i](#) 2-Methylpropane
- [i](#) A 31 (hydrocarbon)
- [i](#) Caswell No. 503A
- [i](#) EINECS 200-857-2
- [i](#) EPA Pesticide Chemical Code 097101
- [i](#) HSDB 608
- [i](#) Isobutane
- [i](#) Propane, 2-methyl-
- [i](#) R 600a
- [i](#) Trimethylmethane

**Systematic Name**

- [i](#) Isobutane
- [i](#) Propane, 2-methyl-

**Superlist Name**

- [i](#) Isobutane
- [i](#) Propane, 2-methyl-



Registry  
Numbers**CAS Registry Number**[i](#) 75-28-5**Other Registry Number**[i](#) 100494-20-0[i](#) 70357-15-2**System Generated Number**[i](#) 000075285

## Formulas

**Molecular Formula**[i](#) C4-H10

## Locators

**File Locator**

DART

[i](#) Developmental and Reprod.Tox.

DSL

[i](#) Domestic Sub. List of Canada

EINECS

[i](#) EU Inv of Exist. Comm. Chem Sub

EMIC

[i](#) Env. Mutagen Info. Center

HSDB

[i](#) Hazardous Substances Data Bank

RTECS

[i](#) Reg. of Toxic Eff. of Chem. Sub.

TSCAINV

[i](#) EPA Chem. Sub. Inventory

PubChem

[i](#) PubChem

TOXLINE

[i](#) NLM TOXLINE on TOXNET

Household Products

[i](#) Household Products Database

WebWISER

[i](#) Wireless Info Sys for Emerg Resp

Haz-Map

[i](#) Occ. Exposure to Haz. Agents**Superlist Locator**

HPV

[i](#) EPA High Production Vol. Chem.

INER

[i](#) EPA Pesticide Inert Ingredients

MA

[i](#) Massachusetts Right-to-know Sub.

NJ

[i](#) New Jersey Right-to-know Sub.

PA

[i](#) Pennsylvania Right-to-know Sub.

PAFA

[i](#) FDA Substances added to food

GRAS

[i](#) FDA Sub. Generally Rec. as Safe**Internet Locator**

NIOSH Pocket Guide

[i](#) NIOSH Pocket Guide to Chem Haz

NIOSH ICSC

[i](#) NIOSH Intl. Chem. Safety Cards

NIST WebBook

[i](#) NIST Chemistry WebBook

SRC CHEMFATE

[i](#) Syracuse Res. Corp. CHEMFATE

EPA SRS

[i](#) EPA Substance Registry System

EPA Envirofacts

[i](#) EPA Master Chemical Integrator

OSHA Chem

[i](#) OSHA Chemical Sampling Info

ChEBI

[i](#) Chem Entities of Biological Interest

NJ-HSFS

[i](#) New Jersey Haz. Sub. Fact Sheets

EPA PPIS

[i](#) EPA Pest. Prod. Info. System

## Toxicity

Organism	Test Type	Route	Reported Dose (Normalized Dose)	Effect	Source
mouse	LCLo	inhalation	1041gm/m3/2H (1041000mg/m3)	BEHAVIORAL: EXCITEMENT	Journal of Pharmacology and Experimental Therapeutics. Vol. 58, Pg. 74, 1936.
rat	LC50	inhalation	57pph/15M (570000ppm)	BEHAVIORAL: TREMOR  BEHAVIORAL: CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD  LUNGS, THORAX, OR RESPIRATION: RESPIRATORY DEPRESSION	Human Toxicology. Vol. 1, Pg. 239, 1982. <a href="#">Link to PubMed</a>

## Physical Properties

Physical Property	Value	Units	Temp (deg C)	Source
Melting Point	-1.38E+02	deg C		EXP
Boiling Point	-1.17E+01	deg C		EXP
log P (octanol-water)	2.76	(none)		EXP
Water Solubility	48.8	mg/L	25	EXP
Vapor Pressure	2610	mm Hg	25	EXP
Henry's Law Constant	1.190	atm-m3/mole	25	EST
Atmospheric OH Rate Constant	2.34E-12	cm3/molecule-sec	25	EXP

Physical property data is provided to ChemIDplus by [Syracuse Research Corporation](#).  
See [all available property data for this compound](#), including references.

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Customer Service: [tehip@tehl.nlm.nih.gov](mailto:tehip@tehl.nlm.nih.gov).



**GESTIS - Stoffdatenbank**  
GESTIS is the information system on hazardous substances of the  
Berufsgenossenschaften  
(German institutions for statutory accident insurance and prevention)

## Isobutane

Information is included to the following **mainchapters**:

[Identification](#) | [Physical and chemical properties](#) | [Occupational health and first aid](#) | [Handling and usage](#) | [Regulations](#) | [Literature register](#)

### IDENTIFICATION

Isobutane

iso-Butane  
i-Butane  
i-Methyl ethyl methane  
2-Methyl propane  
Trimethyl methane

ZVG-Number : 25040  
CAS-Number : 75-28-5  
INDEX-Number : 601-004-00-0  
EC-Number : 200-857-2

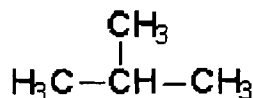
Substance classification :  
140110 Hydrocarbons, aliphatic, saturated  
139900 organic gases

State of aggregation : gaseous  
at 1013 mbar/20 degrees C

Colour : colourless  
Odour : nearly odourless

Characterisation :  
Extremely inflammable gas.  
Forms explosive mixtures with air.  
Practically insoluble in water.  
Gas is heavier than air.  
Evaporation of very cold liquid or expansion of the gas  
causes formation of cold mist spreading on the ground.

FORMULA :



C4-H10



Molar 58,12 g/mol

Conversion factor : 1 ml/m<sup>3</sup> = 2,42 mg/m<sup>3</sup>  
at 1013 mbar/20 degrees C

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The following **main sections** contain further information about this material.

Identification | Physical and chemical properties | Occupational health and first aid | Handling and usage | Regulations | Literature register

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This material data sheet was carefully compiled. However no liability can be assumed for the data content, whatever the legal cause may be.

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## Isobutane

**PHYSICAL AND CHEMICAL PROPERTIES**

Data is available for the following **sections** :

Melting point | Boiling point | Density | Vapor pressure | Flash point | Ignition temperature | Explosion limits | Solubility | Hazardous reactions | Futher information

**MELTING POINT**

Melting point : -159,42 Grad C

**BOILING POINT**

Boiling point : -11,7 Grad C

**DENSITY****VAPOUR DENSITY**

under standard conditions (0 Deg. C, 1013 mbar)

Value : 2,6956 kg/m<sup>3</sup>

**DENSITY OF LIQUID PHASE AT BOILING POINT**

Value : 0,5937 kg/l

**RELATIVE VAPOUR DENSITY**

Ratio of the density to dry air at  
the same temperature and pressure

Value : 2,047

**VAPOUR DENSITY**

Value : 2,5060 kg/m<sup>3</sup>

at 1 bar

Temperature : 15 Grad C

**VAPOUR PRESSURE**

Vapour pressure : 3,019 bar

Temperature : 20 Grad C

Vapour pressure : 4,1 bar

Temperature : 30 Grad C

Vapour pressure : 6,78 bar

Temperature : 50 Grad C

**FLASH POINT**

Flash point : -83 Grad C

**IGNITION TEMPERATURE**

Ignition temperature : 460 Grad C

Temperature T1

Explosion group : IIA

## EXPLOSION LIMITS

Lower explosion limit :

1,5 Vol.-%

37 g/m<sup>3</sup>

Upper explosion limit :

9,4 Vol.-%

231 g/m<sup>3</sup>

Limiting oxygen concentration (LOC) :

10,3 Vol.-%

## SOLUBILITY IN WATER

Concentration : 49 mg/l

Temperature : 20 Grad C

## HAZARDOUS REACTIONS

### Hazardous chemical reactions :

The substance forms an explosive mixture with air.  
Bei Kontakt mit starken Oxidationsmitteln erfolgt Entzündung oder Explosion. Gemische mit stark oxidierenden Gasen wie Sauerstoff, Chlor, Distickstoffoxid und Stickstofftetroxid reagieren spontan bzw. bei thermischer oder katalytischer Zündung explosiv.

## FURTHER INFORMATION

critical temperature : 134,98 degree C  
critical pressure : 36,5 bar  
critical density : 0,221 kg/l  
triple point temperature : -159,60 degree C  
triple point pressure : 0,19481 mikrobar

global warming potential : 3  
ozone depletion potential : 0

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## Isobutane

<b>REGULATIONS</b>
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Data is available for the following **sections** :

Classification | Labelling | Workplace labelling | Water pollution class | Air pollution prevention |  
 Transport Regulations | Threshold limit values | Recommendations of MAK | Ordinance of failure |  
 Further regulations

**EUROPEAN CLASSIFICATION**

F+; R12

**EUROPEAN LABELLING**

Hazard symbol :



F+ Extremely flammable

Risk phrases (R-phrases) :

R 12

Extremely flammable

Safety advices (S-phrases) :

S (2)

Keep out of the reach of children (if sold to the general public)

S 9

Keep container in an well-ventilated place

S 16

Keep away from sources of ignition - No smoking

EC-Classification, 21st adaption directive 94/69/EEC

Quelle : 07558

**WORKPLACE LABELLING ACCORDING TO GERMAN ASR A1.3**

Prohibition label :



No fire, open flame and smoking



No admittance for unauthorized persons

Warning label :

Caution - gas cylinder



Caution - explosive atmosphere

Precept label :



Use safety goggles



Wear safety shoes

## GERMAN WATER HAZARD CLASS

Substance No. : 562

non-hazardous to waters

Classification according to the Administrative Regulation  
of Substances Hazardous to Water (VwVwS)

## TECHNICAL INSTRUCTION OF AIR POLLUTION PREVENTION (TA Luft)

Chapter 5.2.5 Organic Substances

Organic substances, except dusts.

The following values, specified as overall carbon, are in  
all not allowed to be exceeded in exhaust gas:

Mass flow : 0,50 kg/h

or

Mass concentration : 50 mg/m<sup>3</sup>

At old units with an annual mass flow till 1,5 Mg/a,  
specified as total carbon, the emissions in exhaust gas  
are not allowed to exceed 1,5 kg/h.

## TRANSPORT REGULATIONS

UN-Number: 1969

Shipping name: Isobutane

Hazard Identification Number: 23

Class: 2.1 (Flammable Gases)

Packing Group: -



Danger Label: 2.1

Tunnel Restrictions:

Passage forbidden through tunnels of category B and C when  
carried in tanks.

Passage forbidden through tunnels of category D and E.



**TRGS 900 - GERMAN OCCUPATIONAL EXPOSURE LIMIT VALUES**

1000 ml/m<sup>3</sup>  
2400 mg/m<sup>3</sup>

Peak limitation

Excursion factor 4

Duration 15 min, mean; 4 times per shift; interval 1 hour  
Category II - Substances with systemic effects

Source : DFG

Quelle : 05350

**RECOMMENDATIONS OF MAK-COMMISSION**

This data is recommended by scientific experience and is not established law.

1000 ml/m<sup>3</sup>  
2400 mg/m<sup>3</sup>

Limitation of exposure peaks :

Excursion factor 4

Duration 15 min, mean; 4 times per shift; interval 1 hour

Pregnancy : Group D

A classification according to groups A-C is not possible, because either there is no data available or the available data is insufficient for a final evaluation.

Quelle : 08079

**GERMAN ORDINANCE OF FAILURE**

Annex I - No.: 11

Threshold for operating range to § 1 sec. 1

- Record 1: 50000 kg

- Record 2: 200000 kg

Scope: extremely flammable, liquified gases (including liquid gas) and natural gas

**FURTHER REGULATIONS**

TRGS 200

Einstufung und Kennzeichnung von Stoffen, Zubereitungen und Erzeugnissen  
Ausgabe Februar 2007

TRGS 201

Einstufung und Kennzeichnung von Abfällen zur Beseitigung beim Umgang  
Ausgabe Juli 2002; BArbBl. 7-8/2002 S. 140-142

TRGS 400

Ermitteln und Beurteilen der Gefährdungen durch Gefahrstoffe am Arbeitsplatz: Anforderungen  
Ausgabe März 1998; BArbBl. 3/1998 S. 53-56; mit Änderungen und Ergänzungen BArbBl. 3/1999 S. 62 53-64

## TRGS 440

Ermitteln und Beurteilen von Gefährdungen durch  
Gefahrstoffe am Arbeitsplatz: Ermitteln von Gefahrstoffen  
und Methoden zur Ersatzstoffprüfung  
Ausgabe März 2001; BArbBl. 3/2001 S. 105-112; zuletzt  
geändert BArbBl. 3/2002 S. 68-70

## TRGS 555

Betriebsanweisung und Unterweisung nach § 20 GefStoffV  
Ausgabe Dezember 1997; BArbBl. 12/1997 S. 49-58

## TRGS 402

Ermittlung und Beurteilung der Konzentrationen gefährlicher  
Stoffe in der Luft in Arbeitsbereichen  
Ausgabe November 1997; BArbBl. 11/1997 S. 27-33

## TRGS 403

Bewertung von Stoffgemischen in der Luft am Arbeitsplatz  
Ausgabe Oktober 1989; BArbBl. 10/1989 S. 71-72

## TRGS 420

Ermitteln und Beurteilen der Gefährdungen durch Gefahrstoffe  
am Arbeitsplatz: Verfahrens- und stoffspezifische Kriterien  
(VSK) für die betriebliche Arbeitsbereichsüberwachung  
Ausgabe September 1999; BArbBl. 9/1999 S. 53-58; mit  
zuletzt geändert BArbBl. 1/2003 S. 58-60

## TRGS 500

Schutzmaßnahmen: Mindeststandards  
Ausgabe März 1998; BArbBl. 3/1998 S. 57-59

BG-Vorschrift D 34 (VBG 21)  
"Verwendung von Flüssiggas"  
Fassung 1.10.93/1.01.97

Technische Regeln Druckbehälter (TRB)  
Technische Regeln Druckgase (TRG)

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The following **main sections** contain further information about this material.  
Identification | Physical and chemical properties | Occupational health and first aid | Handling and  
usage | Regulations | Literature register

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This material data sheet was carefully compiled. However no liability can be assumed for the data  
content, whatever the legal cause may be.

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Isobutane

**OCCUPATIONAL HEALTH AND FIRST AID**

Data is available for the following sections :

Toxic effects | First aid

**TOXIC EFFECTS****Annotation :**

At present time the occupational health information for this substance is only available in german.  
Please consult our database in german.

**FIRST AID****Annotation :**

At present time the first aid information for this substance is only available in german.  
Please consult our database in german.

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The following **main sections** contain further information about this material.

Identification | Physical and chemical properties | Occupational health and first aid | Handling and usage | Regulations | Literature register

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## Isobutane

**LITERATURE REGISTER**

Quelle :00104

Sorbe: Sicherheitstechnische Kenndaten chemischer Stoffe  
sicherheitsNet.de, Landsberg

Quelle :00200

Auerdata 98, Auergesellschaft GmbH, Berlin, 1998

Quelle :00240

E. Brandes, W. Möller: Sicherheitstechnische Kenngrößen,  
Band 1: Brennbare Flüssigkeiten und Gase. Wirtschaftsverlag  
NW, Verlag für neue Wissenschaft GmbH, Bremerhaven, 2003

Quelle :00260

1x1 der Gase. Physikalische Daten für Wissenschaft und  
Praxis. Herausgeber: AIR LIQUIDE Deutschland GmbH,  
Düsseldorf, 1. Auflage 2005

Quelle :00336

Schriftreihe der Bundesanstalt für Arbeitsschutz  
Gefährliche Arbeitsstoffe - (GA 32) GAS-ATLAS  
2. Auflage; Dortmund 1992

Quelle :00442

Datenbank CHEMSAFE, Version 1.4.7 (2006), DECHEMA-PTB-BAM

Quelle :00500

RÖMPP Online ab 2003

Quelle :05000

Kühn-Birett-Gruppenmerkblätter

Quelle :05200

Kühn-Birett: Merkblätter Gefährliche Arbeitsstoffe

Quelle :05350

TRGS 900: Arbeitsplatzgrenzwerte; Ausgabe Januar 2006;  
zuletzt geändert März 2007

Quelle :06002

L. Roth, U. Weller: Gefährliche Chemische Reaktionen.  
Loseblattsammlung mit Ergänzungslieferungen, ecomed-Verlag

Quelle :06501

DIN 8960: Kältemittel - Anforderungen und Kurzzeichen  
(Ausgabe November 1998)

Quelle :06633

BG-Regel 192 (ZH 1/703): Benutzung von Augen- und  
Gesichtsschutz; Ausgabe 7.01

Quelle :07504

Erste Allgemeine Verwaltungsvorschrift zum Bundes-

Immissionsschutzgesetz (Technische Anleitung zur Reinhaltung der Luft - TA Luft) vom 24.07.2002, GMBL 2002, Heft 25 - 29 S. 511 - 605.

Quelle :07558  
Richtlinie 67/548/EWG für die Einstufung, Verpackung und Kennzeichnung gefährlicher Stoffe, Anhang I

Quelle :07584  
Allgemeine Verwaltungsvorschrift zur Änderung der Verwaltungsvorschrift wassergefährdende Stoffe - VwVwS vom 27. Juli 2005; Bundesanzeiger Jahrgang 57, Nr. 142a, vom 30. Juli 2005

Quelle :07635  
Auerdata Ausgabe 1998 und BG-Regel 190 (ZH 1/701) Einsatz von Atemschutzgeräten; Fassung 10.96

Quelle :07782  
VCI: Konzept zur Zusammenlagerung von Chemikalien

Quelle :07796  
L. Roth: Wassergefährdende Stoffe.  
Loseblattsammlung mit Ergänzungslieferungen, ecomed-Verlag

Quelle :07877  
BUA Stoffbericht 144: Flüssiggas (Propan, Butan, Isobutan und Gemische) - Stand 06/94

Quelle :07902  
Kühn-Birett: Gefahrgutschlüssel; Loseblattsammlung mit Ergänzungslieferungen; ecomed-Verlag

Quelle :07975  
H. F. Bender: Das Gefahrstoffbuch; VCH Weinheim, 1996

Quelle :08079  
DFG Deutsche Forschungsgemeinschaft: MAK- und BAT-Werte-Liste 2007, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Mitteilung 43; VCH

Quelle :99998  
Angabe auf Basis des geltenden Vorschriften- und Regelwerks

Quelle :99999  
Angabe des Bearbeiters

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The following **main sections** contain further information about this material.

Identification | Physical and chemical properties | Occupational health and first aid | Handling and usage | Regulations | Literature register

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# Propane, 2-methyl-

## RTECS - Registry of Toxic Effects of Chemical Substances

### 1.0 SUBSTANCE IDENTIFICATION▲

RTECS Number: TZ4300000

Chemical Name: Propane, 2-methyl-

CAS Number: 75-28-5

Molecular Formula: C<sub>4</sub>H<sub>10</sub>

Molecular Weight: 58.14

Wiswesser Notation: 1Y1&1

Substance Investigated as: Human Data

Last Revision Date: 200702

### 2.0 SYNONYM(S)/TRADENAME(S)▲

1. 1,1-Dimethylethane
2. 2-Methylpropane
3. A 31 (hydrocarbon)
4. R 600a
5. Trimethylmethane

### 3.0 HEALTH HAZARD DATA▲

#### ACUTE TOXICITY

#### TDLO/TCLO - LOWEST PUBLISHED TOXIC DOSE/CONC

##### *Human*

**TCLO - ROUTE:** Inhalation; **DOSE:** 280 mg/m<sup>3</sup> [Toksikologicheskii Vestnik. (18-20 Vadkovskii per. Moscow, 101479, Russia) History Unknown ((3),38,2000)]

**TOXIC EFFECTS:**

*Brain and Coverings* - Changes in surface EEG

##### *Mouse*

**TCLO - ROUTE:** Inhalation; **DOSE:** 500000 mg/m<sup>3</sup>/2H [Toksikologicheskii Vestnik. (18-20 Vadkovskii per. Moscow, 101479, Russia) History Unknown ((3),38,2000)]

**TOXIC EFFECTS:**

*Behavioral* - Ataxia

**Mammal – Unspecified Species**

**TCLo – ROUTE:** Inhalation; **DOSE:** 58600 mg/m<sup>3</sup> [Toksikologicheskii Vestnik. (18–20 Vadkovskii per. Moscow, 101479, Russia) History Unknown ((3),38,2000)]

**TOXIC EFFECTS:**

*Lung, Thorax, or Respiration* – Other changes

*Blood* – Changes in serum composition (e.g., TP, bilirubin, cholesterol)

*Biochemical* – Multiple enzyme effects

**LDLO/LCLO – LOWEST PUBLISHED LETHAL DOSE/CONC****Mouse**

**LCLo – ROUTE:** Inhalation; **DOSE:** 1041 gm/m<sup>3</sup>/2H [Journal of Pharmacology and Experimental Therapeutics. (Williams & Wilkins Co., 428 E. Preston St., Baltimore, MD 21202) V.1– 1909/10– (58,74,1936)]

**TOXIC EFFECTS:**

*Behavioral* – Excitement

**LD50/LC50 – LETHAL DOSE/CONC 50% KILL****Rat**

**LC50 – ROUTE:** Inhalation; **DOSE:** 57 pph/15M [Human Toxicology. (Macmillan Press Ltd., Houndmills, Basingstoke, Hants., RG 21 2XS, UK) V.1– 1981– (1,239,1982)]

**TOXIC EFFECTS:**

*Behavioral* – Tremor

*Behavioral* – Convulsions or effect on seizure threshold

*Lung, Thorax, or Respiration* – Respiratory depression

**LC50 – ROUTE:** Inhalation; **DOSE:** 658000 mg/m<sup>3</sup>/4H [Toksikologicheskii Vestnik. (18–20 Vadkovskii per. Moscow, 101479, Russia) History Unknown ((3),38,2000)]

**Mouse**

**LC50 – ROUTE:** Inhalation; **DOSE:** 680000 mg/m<sup>3</sup>/2H [Toksikologicheskii Vestnik. (18–20 Vadkovskii per. Moscow, 101479, Russia) History Unknown ((3),38,2000)]

**OTHER LD/LC – OTHER LETHAL DOSE/CONC****Rat**

**LC16 – ROUTE:** Inhalation; **DOSE:** 537000 mg/m<sup>3</sup>/4H [Toksikologicheskii Vestnik. (18–20 Vadkovskii per. Moscow, 101479, Russia) History Unknown ((3),38,2000)]

**TOXIC EFFECTS:**

*Behavioral* – General anesthetic

**Mouse**

**LC16 – ROUTE:** Inhalation; **DOSE:** 530000 mg/m<sup>3</sup>/2H [Toksikologicheskii Vestnik. (18–20 Vadkovskii per. Moscow, 101479, Russia) History Unknown ((3),38,2000)]

**TOXIC EFFECTS:**