

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Date of issue: 05.08.2007

Supersedes edition of: 13.02.2004

1. Identification of the substance/preparation and of the company/undertaking

Identification of the product

Catalogue No.: 123456
Product name: 2-Propanol
REACH Reg.-No.: 123456789

Use of the substance/preparation

Industrial: Any processing e.g. cleaning, mixing, handling, storing (Link to Descriptor Model)
Consumer: E.g. handling, cleaning

In compliance with the conditions described in the annex of this safety data sheet.

Function of the substance/preparation

E.g. reagent for analysis
Solvent
Process chemical
Intermediate

Operational Area

Industrial Processing
Laboratory Chemical (Nace Code XYZ)

Company/undertaking identification

Company: ABC * 12345 Darmstadt * Germany * Tel: +49 123456
Emergency telephone No.: +123456 * Fax: +123456
Contact for information: EHS Product Information * E-mail: prodsafe@abc.de

2. Hazards identification

Highly flammable. Irritating to eyes. Vapours may cause drowsiness and dizziness.

3. Composition/information on ingredients

Synonyms

iso-Propanol, Isopropanol, Isopropyl alcohol, Dimethyl carbinol

CAS-No.:	67-63-0	EC-Index-No.:	603-117-00-0
M:	60.10 g/mol	EC-No.:	200-661-7
Formula Hill:	C ₃ H ₈ O		
Chemical formula:	CH ₃ CH(OH)CH ₃		

4. First aid measures

After inhalation: Fresh air. Consult doctor if feeling unwell.

After skin contact: Wash off with plenty of water. Remove contaminated clothing.

After eye contact: Rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist.

After swallowing: Caution if victim vomits. Risk of aspiration! Keep airways free. Immediately call in physician.

In case of spontaneous vomiting: Risk of aspiration. Pulmonary failure possible. Call in physician.

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

5. Fire-fighting measures

Suitable extinguishing media: CO₂, foam, powder.

Special risks:

Combustible. Vapours heavier than air.

Forms explosive mixtures with air at ambient temperatures. Beware of backfiring. Development of hazardous combustion gases or vapours possible in the event of fire.

Special protective equipment for fire fighting:

Do not stay in dangerous zone without self-contained breathing apparatus.

Other information:

Prevent fire-fighting water from entering surface water or groundwater. Cool container with spray water from a safe distance. Contain escaping vapours with water.

6. Accidental release measures

Person-related precautionary measures:

Do not inhale vapours/aerosols. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures:

Do not allow to enter sewerage system; risk of explosion!

Procedures for cleaning / absorption:

Take up with liquid-absorbent material (e.g. Chemizorb®). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

Notes for prevention of fire and explosion:

Keep away from sources of ignition. Take measures to prevent electrostatic charging.

Notes for safe handling:

Work under hood. Do not inhale substance. Avoid generation of vapours/aerosols. For further details see Annex.

Storage:

Tightly closed in a well-ventilated place, away from sources of ignition and heat. At +5 °C to +30 °C.

8. Exposure controls/personal protection

Additional control parameters for industrial hygiene

TRGS 903 (biological tolerance value)

Name:	Propan-2-ol
Parameter	Acetone
Values	50 mg/l
Test material:	blood
Test extraction, time:	b

Parameter:	Acetone
Values:	50 mg/l
Test material	urine
Test extraction, time:	b

TRGS 900

Name	Propan-2-ol
Value	200 ml/m ³ 500 mg/m ³
Peak limit	exceeding factor: 2(II)

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

Embryo toxic Y Substances where no foetotoxic risk is to be expected when observing the maximum allowable concentration (MAC Germany) and the biological tolerance value at the workplace (BAT Germany).

Exposure value limits:

DNEL

Industrial/Professional	Consumer	Exposure Route	Exposure Duration	Remarks
relevant	relevant	Oral	Short term Long term	-
400 mg/kg/d	400 mg/kg/d	Dermal	Short term Long term	-
1,000 mg/m ³ 500 mg/m ³	100 mg/m ³ 50 mg/m ³	Inhalation	Short term Long term	-

PNEC

Industrial/Professional	Consumer	Exposure Route	Exposure Frequency	Remarks
Not available/relevant 1.4 mg/l	Not available/relevant 1.4 mg/l	Water	Single Continuous	Readily biodegradable
50 mg/m ³ or 1 kg/h total carbon in the exhaust air	Not available/relevant	Air	Single Continuous	Abiotic degradable
Not available/relevant	Not available/relevant	Soil	Single Continuous	Readily biodegradable

Occupational exposure controls:

Technical measures to prevent exposure:

Please see exposure specific guidance in the annex and chapter 7.

Personal protective equipment

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory protection: required when vapours/aerosols are generated. Filter A (acc. to DIN 3181) for vapours of organic compounds.

Eye protection: required

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

Hand protection: In full contact:
Glove material: nitrile rubber
Layer thickness: 0.40 mm
Breakthrough time: > 480 Min.

In splash contact:
Glove material: polychloroprene
Layer thickness: 0.65 mm
Breakthrough time: > 120 Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 730 Camatril®-Velours (full contact), 720 Camapren® (splash contact). The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Voluntarily Information.

Other protective equipment:

Flame-proof protective clothing. Antistatic protective clothing.

Industrial hygiene:

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale the substance.

Environmental exposure controls and protective equipment

Water: Do not release into water. If in waste water, waste water treatment is required. See exposure specific guidance in the annex.

Air: For industrial and professional uses air-filters may be required. See exposure specific guidance in the annex.

Soil: Do not release into the soil.

Exposure controls for consumer use and in articles

Preparations: Any preparation containing this substance shall not be ingested orally. In concentrations < 5 % no dermal risk occurs.

To keep the inhalation: DNEL. See exposure specific guidance in the annex.

Articles: Articles produced with the substance shall be adequately dried. Exposure resulting by the article shall be below the DNEL for inhalation. See exposure specific guidance in the annex.

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

9. Physical and chemical properties

Form:	liquid	
Colour:	colourless	
Odour:	alcohol-like	
pH value	(20 °C)	neutral
Viscosity (dynamic)	(20 °C)	2.2 mPa*s
Melting point		-89.5 °C
Boiling point	(1013 hPa)	82.4 °C
Ignition temperature		425 °C (DIN 51794)
Flash point		12 °C c.c.
		17 °C o.c.
Explosion limits	lower	2 Vol-%
	upper	12.7 Vol-%
Vapour pressure	(20 °C)	43 hPa
Relative vapour density		2.07
Density	(20 °C)	0.786 g/cm ³
Solubility in water	(20 °C)	soluble
log Pow		0.05 (OECD 107)

10. Stability and reactivity

Conditions to be avoided

Warming. A range from approx. 15 °C below the flash point is to be rated as critical.

Substances to be avoided

Risk of ignition or formation of inflammable gases or vapours with: alkali metals, alkaline earth metals, aluminium in powder form.

Exothermic reaction with: oxidizing agent (i.a. perchlorates, CrO₃, nitric acid), aldehydes, amines, fuming sulfuric acid, iron.

Risk of explosion with: chlorates, phosgene, organic nitro compounds, hydrogen peroxide, nitrogen oxides.

Hazardous decomposition products

No information available

Further information

Hygroscopic;
Solvent for: oils, rubber;
Unsuitable working materials: various plastics, rubber;
Explosible with air in a vaporous/gaseous state.

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

11. Toxicological information

Toxicokinetics/Metabolism and Distribution

Acute toxicity

LC₅₀ (inhalation, rat): 46.5 mg/l/4 h (External MSDS).
LD₅₀ (dermal, rabbit): 12,800 mg/kg (RTECS).
LD₅₀ (oral, rat): 5,045 mg/kg (RTECS).
LDLo (oral, human): 3,570 mg/kg (RTECS).

Specific symptoms in animal studies:

Eye irritation test (rabbit): Irritations (RTECS).

Subacute to chronic toxicity

Sensitisation:

Sensitisation test (guinea pig): Negative. (IUCLID)

Carcinogenic/mutagenic/reprotoxic Information

Noncarcinogenic in animal experiments. (IUCLID)

No impairment of reproductive performance in animal experiments. (IUCLID)

No teratogenic effect in animal experiments. (IUCLID)

Mutagenicity (mammal cell test): Micronucleus negative. (in vivo) (IUCLID)

Bacterial mutagenicity: Ames test: negative. (in vitro) (IUCLID)

CMR properties are not known at this time.

Further toxicological information

After inhalation: Irritation symptoms in the respiratory tract. drowsiness, dizziness.
After skin contact: Degreasing effect on the skin, possibly followed by secondary inflammation.
After eye contact: Irritations.
After swallowing: After accidental swallowing the substance may pose a risk of aspiration.
Passage into the lung (vomiting!) can result in a condition resembling pneumonia (chemical pneumonitis).
After absorption: headache, dizziness, inebriation, unconsciousness, narcosis.
After uptake of large quantities: respiratory paralysis, coma.

Further data

The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Abiotic degradation:

Rapid degradation. (air)

Biologic degradation:

Biodegradation: 95 %/21 d (OECD 301 E). Readily biodegradable.

Behaviour in environmental compartments:

Distribution: log Pow: 0.05 (OECD 107).
No bioaccumulation is to be expected (log Pow <1).

Ecotoxic effects: Biological effects:

Toxic effect on fish and plankton. According to current knowledge, does not cause interferences in waste water treatment if used appropriately.

Fish toxicity: L. macrochirus LC₅₀: 1,400 mg/l/96 h (ECOTOX Database).

Daphnia toxicity: Daphnia magna EC₅₀: 13,299 mg/l/48 h (IUCLID).

Algal toxicity: Desmodesmus subspicatus IC₅₀: >1,000 mg/l/72 h (IUCLID).

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

Bacterial toxicity: Ps. putida EC₅: 1,050 mg/l/16 h (Lit.).
Maximum permissible toxic concentration:
Bacterial toxicity: Ps. putida EC₅: 1,050 mg/l/16 h (Lit.).
Protozoa: E. sulcatum EC₅: 4,930 mg/l/72 h (Lit.).

Further ecologic data:

TOD: 2.40 g/g (Lit.).
BOD: 49 % from TOD/5 d (IUCLID).
COD: 96 % from TOD (Lit.).

Do not allow to enter waters, waste water, or soil!

13. Disposal considerations

Product:

Chemicals must be disposed of in compliance with the respective national regulations. Under www.retrologistik.de you will find country- and substance-specific information as well as contact partners.

Packaging:

The company product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system. Under www.retrologistik.de you will find special information on the respective national conditions as well as contact partners.

For additional information for waste treatment see the annex

14. Transport information

Road & Rail: ADR, RID
UN 1219 ISOPROPANOL, 3, II

Inland waterway ADN, ADNR

Sea: IMDG-Code
UN 1219 ISOPROPANOL, 3, II
Ems F-E S-D

Air: CAO, PAX
UN 1219 ISOPROPANOL, 3, II

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

15. Regulatory information

Chemical safety assessment:

Was completed. See information in the annex.

Labelling according to EC Directives:

Symbol:	F Xi	Highly flammable Irritant
R-phrases: dizziness.	11-36-67	Highly flammable. Irritating to eyes. Vapours may cause drowsiness and
S-phrases:	7-16-24/25-26	Keep container tightly closed. Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
EC-No.:	200-661-7	EC label

German regulations:

Water pollution class: 1 (slightly polluting substance) VwVwS Annex. 2 No. 135

Storage class VCI: 3

Data sheet of the Chemical Professional Association:

M017 Solvents (further legal areas are not proved yet.)
M004 Irritant substances/corrosive substances
M050 Dealing with harmful substances

Local regulations on chemical accidents:

7b

The employment restrictions for young workers in accordance with section 22 of the Youth Employment Protection Law (JArbSchG) are to be observed.

16. Other information

Reason for alteration:

Chapter 8: specific control parameters.

Chapter 11: toxicological information.

Chapter 12: ecological information.

Annex.

Non intended uses: Spraying

General update.

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions and conditions. It does not represent a guarantee of the properties of the product.

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

Annex

Title of the Exposure Scenarios: *Industrial Processing*
Laboratory Chemical

Use of the substance/preparation

Industrial: Any processing e.g. cleaning, mixing, handling, storing (Link to Descriptor Model) (except spraying)

Consumer: E.g. handling, cleaning

In compliance with the conditions described in the annex of this safety data sheet.

Function of the substance/preparation

E.g. reagent for analysis
Solvent
Process chemical
Intermediate

Physical and chemical hazards are described within chapter 5 and 8.

The following exposure categories show the likely main categories, exposure routes, durations or frequencies for the identified uses:

Human

Exposure Route	Exposure Frequency	Industrial		Professional		Consumer	
		1.	0	2.	0	3.	-
Oral	Short term (<30 min)	1.	0	2.	0	3.	-
	Long term (<8 h)	4.	0	5.	0	6.	-
Dermal	Short term (<30 min)	7.	+	8.	0	9.	+
	Long term (<8 h)	10.	+	11.	0	12.	+
Inhalation	Short term (<30 min)	13.	+	14.	0	15.	+
	Long term (<8 h)	16.	+	17.	0	18.	+

Environment

Exposure Route	Exposure Frequency	Industrial		Professional		Consumer	
		19.	+	20.	0	21.	+
Water	Single (0-24 h / 28 d)	19.	+	20.	0	21.	+
	Continuous (>24 h / 28 d)	22.	+	23.	0	24.	+
Air	Single (0-24 h / 28 d)	25.	+	26.	0	27.	+
	Continuous (>24 h / 28 d)	28.	+	29.	0	30.	+
Soil	Single (0-24 h / 28 d)	31.	-	32.	0	33.	-
	Continuous (>24 h / 28 d)	34.	-	35.	0	36.	-

0 = Not identified use- and exposure category
- = Not intended use- and exposure category
+ = Identified use- and exposure category

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

The use- and exposure categories contain the following information:

- I. Threshold – DNEL/PNEC also Threshold in products.
- II. Specific toxicological and ecotoxicological informations related to this particular use- and exposure category.
- III. Naming of the used tool for the exposure assessment. measurements, e.g. Tegewa-Tool, EUSES, ECETOC, Integrative Risk Control Indicator) if appropriate LINK to website (personalized) -> download (standard conditions may be on the website or in the MSDS)
- IV. If appropriate specific conditions of the exposure assessment.
- V. Appropriate risk reduction measurements (RMM) to keep the concentration or quantity below the threshold value.
- VI. Safe threshold value below which the substance can be used without RMM, or other safety thresholds for the use- and exposure category.
- VII. If appropriate information for not an intended uses with justification.
- VIII. If appropriate naming critical physical parameter (e.g. physical form, pressure, temperature), also as a requirement.

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

UEC	Risk Management Measures
<p>Categories 7 & 10 Industrial Dermal exposure Short term Long term</p>	<p>I. DNEL: 400 mg/kg/d II. Degreasing effect on the skin, possibly followed by secondary inflammation. III. Qualitative assessment through substance intrinsic properties. IV. <u>not required</u> V. Use occupational protection equipment as described in chapter 8. VI. Below a concentration of 5 % <u>of the substance</u> a skin degreasing effect does not occur. VII. <u>Spraying of the substance is not an intended use</u> (Reason: high availability and concentration in air) (<i>different RMM would apply</i>). VIII. <u>Not required</u></p>
<p>Categories 9 & 12 Consumer Dermal exposure Short term Long term</p>	<p>I. 1. DNEL: 400 mg/kg/d II. Degreasing effect on the skin, possibly followed by secondary inflammation. III. Quantitative assessment. See the FEICA dermal exposure calculation tool. www.feica.de/tool. <u>Standard parameters are used.</u> IV. Other parameters may be used for the calculation if required. (Remark: The exposure shall be lower than the DNEL!) V. <u>Not required</u> VI. Below a concentration of 5 % <u>of the substance</u> a skin degreasing effect does not occur. VII. <u>Spraying of the substance is not an intended use.</u> (Reason: high availability and concentration in air) (<i>different RMM would apply</i>). VIII. <u>Not required</u></p>
<p>Categories 13 & 16 Industrial Inhalation exposure Short term Long term</p>	<p>I. 1. DNEL short term: 1000 mg/m³ DNEL long term: 500 mg/m³ II. At inhalative exposure narcotic symptoms in the respiratory tract may occur e.g. drowsiness, dizziness. III. Quantitative assessment: Measurements at standard workplace conditions. You will find <u>further information for conditions and used parameters on www.abc.de/assessment/isopropanol. Standard parameters are used.</u> IV. <u>not required</u> V. Open laboratory uses e.g. cleaning shall be done within an exhaust hood. Semi-closed laboratory uses e.g. rotary evaporator, GC, DC, HPLC do not require an exhaust hood. Uses for industrial production e.g. processing, filling, sampling, discharging shall require <u>ventilated production</u> (hall min. air exchange rate 5/h) local exhaustion (with hood). Additional personal protective equipment according to no. 8 is required for handling large amounts. VI. <u>For uses of less than x ml, no inhalative RMM are required. For uses > x tons additional personal protection equipment (Face mask with filter) is required (chapter 8).</u> (Theoretical example). VII. Spraying of the substance is a <u>not</u> intended use. For information about spraying contact Reach@abc.de. VIII. <u>Not required.</u></p>

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

UEC	Risk Management Measures
<p>Categories 15 & 18 Consumer Inhalation exposure Short term Long term</p>	<p>I. 1. DNEL short term: 100 mg/m³ DNEL long term: 50 mg/m³</p> <p>II. At inhalative exposure symptoms in the respiratory tract may occur e.g. drowsiness, dizziness.</p> <p>III. Quantitative assessment: The company used the Feica tool for calculating the exposure out of consumer preparations. You will find further information for conditions and used parameters on www.feica.de/tool. Standard parameters are used.</p> <p>IV. Other parameters may be used for the calculation if required. (Remark the emission shall be lower than the DNEL.)</p> <p>V. not required</p> <p>VI. not applicable.</p> <p>VII. Spraying of the substance is <u>not</u> an intended use. For information about spraying contact Reach@abc.de</p> <p>VIII. Not required.</p>
<p>Categories 19 & 22 Industrial Water exposure Single Continuous</p>	<p>I. PNEC: 1.4 mg/l</p> <p>II. Substance is readily biodegradable.</p> <p>III. Quantitative assessment: For the amount the company markets the EUSES calculation tool has been used. You will find detailed information on www.abc.de/assessment/isopropanol. Standard conditions have been used for the calculation.</p> <p>IV. Other parameters may be used for the calculation if required. (Remark the emission shall be lower than the PNEC.)</p> <p>V. The substance shall not be released directly into the water. Wastewater treatment is required. Within standard conditions, no risk to the water occurs. Liquid wastes shall be collected and incinerated.</p> <p>VI. Up to the amount the company markets no risk occurs.</p> <p>VII. Not required</p> <p>VIII. Not required.</p>
<p>Categories 21 & 24 Consumer Water exposure Single Continuous</p>	<p>I. PNEC: 1.4 mg/l</p> <p>II. Substance is readily biodegradable.</p> <p>III. Quantitative assessment: For the amount the company markets the EUSES calculation tool has been used. You will find further information for conditions and used parameters on www.abc.de/assessment/isopropanol. Standard conditions have been used for the calculation.</p> <p>IV. Other parameters may be used for the calculation if required. (Remark the emission shall be lower than the PNEC.)</p> <p>V. The substance shall not be released directly into the water. Wastewater treatment is required. Within standard conditions no risk to the water occurs. Liquid wastes shall be collected and incinerated.</p> <p>VI. Up to the amount the company markets no risk occurs.</p> <p>VII. Not required</p> <p>VIII. Not required.</p>

Safety Data Sheet

According to Regulation (EC) No 1907/2006 (REACH)

Catalogue No.: 123456
Product name: 2-Propanol

UEC	Risk Management Measures
<p>Categories 25 & 28 Industrial Air exposure Single Continuous</p>	<p>I. PNEC: 50 mg/m³ or 1 kg/h overall Carbon in the exhaust air. II. Substance is abiotic degradable. III. Quantitative assessment: For the amount the company markets the EUSES calculation tool has been used. You will find further information for conditions and used parameters on www.abc.de/assessment/isopropanol. Standard conditions have been used for the calculation. IV. Other parameters may be used for the calculation if required. (Remark the emission shall be lower than the PNEC.) V. Filters and exhaust air purification facilities shall be adjusted to keep the PNEC. National emission regulations shall be taken into account. For industrial processing filters and/or air exhaustions (with incineration) are recommended. VI. Up to the amount the company markets no risk occurs. VII. Not required VIII. Not required</p>
<p>Categories 27 & 30 Consumer Air exposure Single Continuous</p>	<p>I. PNEC: not available II. Substance is abiotic degradable. III. Quantitative assessment: For the amount the company markets the EUSES calculation tool has been used. You will find further information for conditions and used parameters on www.abc.de/assessment/isopropanol. Standard conditions have been used for the calculation. IV. Other parameters may be used for the calculation if required. (Remark the emission shall be lower than the PNEC.) V. National emission regulations shall be taken into account. VI. Up to the amount the company markets no risk occurs. VII. Not required VIII. Not required</p>