ISO-PROPYLOL

Version: *10*.02 **Revision Date 2019/04/01**

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name	**iso-Propylol**
REACH No.	01-2119457558-25-0004
Substance name (REACH / CLP)	Propan-2-ol

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

Use	Industrial use Solvent raw material for synthesis processes in the chemical industry
Uses advised against	

1.3 Details of the supplier of the safety data sheet

Company	Sasol Chemie GmbH & Co. KG Anckelmannsplatz 1 20537 Hamburg Germany Telephone: +49 40 63684-1000 Telefax: +49 40 63684-3700
Information (Product safety):	Telephone: + 49 (0) 23 65 - 49 47 05 Telefax: + 49 (0) 23 65 - 49 92 40
E-mail address	solvents.germany.msds@de.sasol.com

1.4 Emergency telephone number

Emergency telephone number	+44 (0)1235 239 670 (Europe, Israel, Africa, Americas) +44 (0)1235 239 671 (Middle East, Arabic African countries) +65 3158 1074 (Asia Pacific) +86 10 5100 3039 (China) +27 (0)17 610 4444 (South Africa) +61 (2)8014 4558 (Australia)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids Category 2	Highly flammable liquid and vapour.
Eye irritation Category 2	Causes serious eye irritation.
Specific target organ toxicity - single exposure Category 3 (Central nervous system)	May cause drowsiness or dizziness.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word Danger

Hazard statements

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary statements

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P312	Call a POISON CENTER/doctor if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

2.3 Other hazards

Vapours may form explosive mixture with air.
Vapours may spread long distances and ignite.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance in the meaning of regulation (EC) 1907/2006.

COMPONENTS TO BE NAMED IN ACCORDANCE WITH REGULATION (EC) 1907/2006 AS WELL AS OTHER HAZARDOUS INGREDIENTS AND CONTAINED SUBSTANCES WITH WORK PLACE LIMIT VALUES

propan-2-ol; isopropyl alcohol; isopropanol

content: >= 70 - < 90 % **component type:** Active ingredient

EC-No.: 200-661-7 **Index-No.:** 603-117-00-0 **CAS-No.:** 67-63-0
REACH No.: 01-2119457558-25-0004
Substance name (REACH / CLP): PROPAN-2-OL; ISOPROPYL ALCOHOL; ISOPROPANOL

Classification (Regulation (EC) No 1272/2008):	Flam. Liq.	2	H225
	Eye Irrit.	2	H319
	STOT SE	3	H336

ethanol; ethyl alcohol

content: >= 10 - < 20 % **component type:** Impurity

EC-No.: 200-578-6 **Index-No.:** 603-002-00-5 **CAS-No.:** 64-17-5

Classification (Regulation (EC) No 1272/2008):	Flam. Liq.	2	H225
	Eye Irrit.	2	H319

Specific Concentration Limits (see section 11)

>= 50 %	Eye Irrit. Category 2; H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice	Take off contaminated clothing and shoes immediately.
If inhaled	Move to fresh air.
In case of skin contact	Wash off with plenty of water.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Drink plenty of water. Do NOT induce vomiting. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed	Risks: No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Indication of any immediate medical attention and special treatment needed	Treatment: For specialist advice physicians should contact the Poisons Information Service.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Water spray jet, Alcohol-resistant foam, Dry powder, Carbon dioxide (CO2) in enclosed spaces
Unsuitable extinguishing media	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	When fighting fires in enclosed spaces: caution, danger of suffocation! Vapours may form explosive mixtures with air.

5.3 Advice for firefighters

Special protective equipment for firefighters	Wear self-contained breathing apparatus and protective suit.
Further information	Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation. Keep away from sources of ignition - No smoking.
Special precautions	Remove all sources of ignition.

6.2 Environmental precautions

Environmental precautions	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling	Ensure adequate ventilation. Vapours are heavier than air and may spread along floors.
Advice on protection against fire and explosion	Keep away from sources of ignition - No smoking. Vapours may form explosive mixtures with air. Do not allow to enter drains (danger of explosion). Take precautionary measures against static discharges.
Temperature class	T2
Fire-fighting class	B: Fires involving liquids or liquid containing substances. Also includes substances which become liquid at elevated temperatures.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Keep container tightly closed. Store between 5 and 25 °C in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.
Advice on common storage	Keep away from oxidizing agents, strongly acid or alkaline materials and amines.
Storage class (TRGS 510)	3: Flammable liquids
Storage temperature	5 - 25 °C
container material	suitable materials: Stainless steel unsuitable materials: Aluminium

7.3 Specific end use(s)

Specific use(s)	Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

National occupational exposure limits

Control parameters / Substance name	Typ	Control parameters	Update	Basis
PROPAN-2-OL	TWA TWA	999 mg/m3 400 ppm	12 2011 12 2011	EH40 WEL
PROPAN-2-OL	STEL STEL	1,250 mg/m3 500 ppm	12 2011 12 2011	EH40 WEL
ETHANOL	TWA TWA	1,920 mg/m3 1,000 ppm	2007 2007	EH40 WEL

EUROPEAN OCCUPATIONAL EXPOSURE LIMITS

No data available

DERIVED NO EFFECT LEVEL (DNEL)

Substance name: PROPAN-2-OL; ISOPROPYL ALCOHOL; ISOPROPANOL			
End Use	**Exposure routes**	**Value**	**Note**
Workers	dermal, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	dermal, Acute/short-term exposure - local effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - local effects		Not relevant / Not applicable
	dermal, long-term exposure - systemic effects	888 mg/kg Body weight/day	
	Inhalation, long-term exposure - systemic effects	500 mg/m3	
	dermal, long-term exposure - local effects		Not relevant / Not applicable
	Inhalation, long-term exposure - local effects		Not relevant / Not applicable
Consumers	dermal, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Oral, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	dermal, Acute/short-term exposure - local effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - local effects		Not relevant / Not applicable

	dermal, long-term exposure - systemic effects	319 mg/kg Body weight/day	
	Inhalation, long-term exposure - systemic effects	89 mg/m3	
	Oral, long-term exposure - systemic effects	26 mg/kg Body weight/day	
	dermal, long-term exposure - local effects		Not relevant / Not applicable
	Inhalation, long-term exposure - local effects		Not relevant / Not applicable

Substance name: ethanol			
End Use	**Exposure routes**	**Value**	**Note**
Workers	dermal, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	dermal, Acute/short-term exposure - local effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - local effects	1900 mg/m3	
	dermal, long-term exposure - systemic effects	343 mg/kg	based on body weight and day
	Inhalation, long-term exposure - systemic effects	950 mg/m3	
	dermal, long-term exposure - local effects		Not relevant / Not applicable
	Inhalation, long-term exposure - local effects		Not relevant / Not applicable
Consumers	dermal, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Oral, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	dermal, Acute/short-term exposure - local effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - local effects	950 mg/m3	
	dermal, long-term exposure - systemic effects	206 mg/kg	based on body weight and day
	Inhalation, long-term exposure - systemic effects	114 mg/m3	
	Oral, long-term exposure - systemic effects	87 mg/kg	based on body weight and day
	dermal, long-term exposure - local effects		Not relevant / Not applicable
	Inhalation, long-term exposure - local effects		Not relevant / Not applicable

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Substance name: PROPAN-2-OL; ISOPROPYL ALCOHOL; ISOPROPANOL		
Environmental Compartment	**Value**	**Note**
Fresh water	140.9 mg/l	
Marine water	140.9 mg/l	
intermittent release	140.9 mg/l	
treatment plant	2251 mg/l	
Fresh water sediment	552 mg/kg	based on dry weight
Marine sediment	552 mg/kg	based on dry weight
Soil	28 mg/kg	based on dry weight
food	160 mg/kg	

Substance name: ethanol		
Environmental Compartment	**Value**	**Note**
Fresh water	0.96 mg/l	
Marine water	0.79 mg/l	
intermittent release	2.75 mg/l	
treatment plant	580 mg/l	
Fresh water sediment	3.6 mg/kg	based on dry weight
Marine sediment		Not relevant / Not applicable
Soil	0.63 mg/kg	based on dry weight
food	0.72 mg/kg	

8.2 Exposure controls

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection

No personal respiratory protective equipment normally required. In inadequately ventilated areas, where workplace limits are exceeded, where unpleasant odours exist or where aerosols are in use, or smoke and mist occur, use self-contained breathing apparatus or breathing apparatus with a type A filter or appropriate combined filter (e.g. where aerosols are in use, or smoke and mist occur, A-P2 or ABEK-P2), in compliance with EN 141.

Hand protection

The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other., Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time., Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature).

gloves suitable for permanent contact:
Material: butyl-rubber
Break through time: >= 480 min

Layer thickness: 0.5 mm

Material: Fluorinated rubber
Break through time: >= 480 min
Layer thickness: 0.4 mm

gloves suitable for splash protection:
Material: Polychloroprene
Break through time: >= 120 min
Layer thickness: 0.5 mm

unsuitable gloves
Material: Natural rubber/natural latex, Nitrile rubber/nitrile latex

Eye protection	Tightly fitting safety goggles
Skin and body protection	Wear suitable protective equipment.
Hygiene measures	Take off all contaminated clothing immediately.
Protective measures	Avoid contact with the skin and the eyes. Do not breathe vapours or spray mist.

ENVIRONMENTAL EXPOSURE CONTROLS

General advice	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	liquid; 20 °C; 1,013 hPa
Form	liquid
Colour	colourless
Odour	alcohol-like
Odour Threshold	No valid method available
pH	7
Melting point/range	ca. -92 °C
Boiling point/boiling range	ca. 82 °C
Flash point	13 °C
Evaporation rate	No data available
Flammability (solid, gas)	not applicable (liquid)
Lower explosion limit	3.3 %(V)
Upper explosion limit	19 %(V)
Vapour pressure	No data available
Relative vapour density	No data available
Density	0.79 g/cm3; 20 °C

Water solubility	completely miscible
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	363 °C
Viscosity, dynamic	No data available
Explosive properties	not expected based on structure and functional groups
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other data

None known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Note	Reacts with the following substances: Strong acids and oxidizing agents

10.2 Chemical stability

Note	Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid	Heat, flames and sparks. Avoid temperatures above 35°C, direct sunlight and contact with sources of heat.

10.5 Incompatible materials to avoid

Materials to avoid	Strong acids and oxidizing agents; Alkali metals; Aluminium; Iron; Amines

10.6 Hazardous decomposition products

Hazardous decomposition products	None known.
Thermal decomposition	No decomposition if used as directed.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity	propan-2-ol; isopropyl alcohol; isopropanol: LD50 Rat: > 5,000 mg/kg; OECD Test Guideline 401 (literature value) Based on available data, the classification criteria are not met. ethanol; ethyl alcohol: LD50 Rat: > 5,000 mg/kg; OECD Test Guideline 401 Symptoms: Central nervous system depression, Coma

(literature value)
Based on available data, the classification criteria are not met.

Acute inhalation toxicity

propan-2-ol; isopropyl alcohol; isopropanol:
LC50 Rat: > 10000 ppm; 6 h; OECD Test Guideline 403
Test atmosphere: vapour
Target Organs: Central nervous system
Symptoms: Drowsiness
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
LC50 Rat: > 20 mg/l; 6 h; OECD Test Guideline 403
Target Organs: Central nervous system
(literature value)
Based on available data, the classification criteria are not met.

Acute dermal toxicity

propan-2-ol; isopropyl alcohol; isopropanol:
LD50 Rabbit: > 5,000 mg/kg; OECD Test Guideline 402
(literature value)
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
LD50 Rat: > 5,000 mg/kg;
(literature value)
Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Skin irritation

propan-2-ol; isopropyl alcohol; isopropanol:
Rabbit: not irritating
(literature value)
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
Rabbit: not irritating; OECD Test Guideline 404
(literature value)
Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Eye irritation

propan-2-ol; isopropyl alcohol; isopropanol:
Rabbit: irritating; OECD Test Guideline 405
(literature value)
Causes serious eye irritation.

ethanol; ethyl alcohol:
Rabbit: irritating; OECD Test Guideline 405
(literature value)
Causes serious eye irritation.

Respiratory or skin sensitisation

Sensitisation

propan-2-ol; isopropyl alcohol; isopropanol:
Buehler Test Guinea pig: not sensitizing; OECD Test Guideline 406
(literature value)
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
Mouse local lymphnode assay Mouse: not sensitizing; OECD Test Guideline 429
(literature value)
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity in vitro

propan-2-ol; isopropyl alcohol; isopropanol:
In vitro tests did not show mutagenic effects
(literature value)

ethanol; ethyl alcohol:
In vitro tests did not show mutagenic effects

(literature value)

Genotoxicity in vivo

propan-2-ol; isopropyl alcohol; isopropanol:
In vivo tests did not show mutagenic effects
(literature value)

ethanol; ethyl alcohol:
In vivo tests did not show mutagenic effects
(literature value)

Remarks

propan-2-ol; isopropyl alcohol; isopropanol:
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
Based on available data, the classification criteria are not met.

Carcinogenicity

Carcinogenicity

propan-2-ol; isopropyl alcohol; isopropanol:
Rat; inhalation (vapour); 2 years; NOAEL: 5,000 mg/m³; OECD Test Guideline 451
(literature value)

Remarks

propan-2-ol; isopropyl alcohol; isopropanol:
Did not show carcinogenic effects in animal experiments.
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
Animal testing did not show any carcinogenic effects.
Based on available data, the classification criteria are not met.

Reproductive toxicity

Reproductive toxicity

propan-2-ol; isopropyl alcohol; isopropanol:
Rat; Oral; 10 weeks; OECD Test Guideline 416
No toxicity to reproduction

ethanol; ethyl alcohol:
Two-generation reproductive toxicity: Mouse; Drinking water; 126-day
NOAEL ((parents)): 13,800 mg/kg (based on body weight and day); OECD Test Guideline 416

RemarksReproductive toxicity

propan-2-ol; isopropyl alcohol; isopropanol:
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
Based on available data, the classification criteria are not met.

Teratogenicity

propan-2-ol; isopropyl alcohol; isopropanol:
Rat; Oral; OECD Test Guideline 414
Did not show teratogenic effects in animal experiments.

ethanol; ethyl alcohol:
Rat; Oral
NOAEL: 5,200 mg/kg (based on body weight and day)
(literature value)

ethanol; ethyl alcohol:
Rat; Inhalation
NOAEL: 39 mg/l; OECD Test Guideline 414
(literature value)

Remarks-Teratogenicity

propan-2-ol; isopropyl alcohol; isopropanol:
Based on available data, the classification criteria are not met.

ethanol; ethyl alcohol:
Based on available data, the classification criteria are not met.

STOT - single exposure

Remarks

propan-2-ol; isopropyl alcohol; isopropanol:
May cause drowsiness or dizziness.

ethanol; ethyl alcohol:
The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Remarks

propan-2-ol; isopropyl alcohol; isopropanol:
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

ethanol; ethyl alcohol:
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

propan-2-ol; isopropyl alcohol; isopropanol:
Rat; inhalation (vapour); 90 d; NOEC: 5000 ppm; OECD Test Guideline 413
(literature value)

ethanol; ethyl alcohol:
Rat; Oral; Subchronic toxicity
NOAEL: 1,730 mg/kg (based on body weight and day)
LOAEL: 3,160 mg/kg (based on body weight and day); OECD Test Guideline 408
Target Organs: Liver
Symptoms: Liver disorders
(literature value)

Aspiration hazard

Aspiration toxicity

propan-2-ol; isopropyl alcohol; isopropanol:
Not applicable

ethanol; ethyl alcohol:
Not applicable
Based on available data, the classification criteria are not met.

Toxicological information

propan-2-ol; isopropyl alcohol; isopropanol:
Toxicokinetics
The substance is readily absorbed through skin, intestinal tract and lungs.
The substance is uniformly distributed throughout the organism.
The substance is rapidly eliminated from the body.

ethanol; ethyl alcohol:
Toxicokinetics
Absorption through skin is possible.
(literature value)

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish

propan-2-ol; isopropyl alcohol; isopropanol:
LC50 (96 h) Pimephales promelas (fathead minnow): > 100 mg/l ; flow-through test; OECD Test Guideline 203
(literature value)

ethanol; ethyl alcohol:
LC50 (96 h) Pimephales promelas (fathead minnow): > 100 mg/l; flow-through test; US EPA E03-05
(literature value)

Toxicity to fish - Chronic toxicity

propan-2-ol; isopropyl alcohol; isopropanol:
The study is not necessary.

	ethanol; ethyl alcohol: NOEC (120 h) Danio rerio (zebra fish): > 100 mg/l; semi-static test; OECD Test Guideline 212 (literature value)
Toxicity to daphnia and other aquatic invertebrates	propan-2-ol; isopropyl alcohol; isopropanol: EC50 (24 h) Daphnia magna (Water flea): > 100 mg/l ; static test; OECD Test Guideline 202 (literature value)
	ethanol; ethyl alcohol: EC50 (48 h) Ceriodaphnia sp.: > 100 mg/l ; static test (literature value)
Toxicity to daphnia and other aquatic invertebrates - Chronic toxicity	propan-2-ol; isopropyl alcohol; isopropanol: The study is not necessary.
	ethanol; ethyl alcohol: NOEC (9 d) Daphnia magna (Water flea): > 1 - 10 mg/l; reproduction rate; semi-static test; (literature value)
Toxicity to aquatic plants	propan-2-ol; isopropyl alcohol; isopropanol: EC50 (7 d) Scenedesmus quadricauda (Green algae): > 100 mg/l ; static test; (literature value)
	ethanol; ethyl alcohol: EC50 (72 h) Chlorella vulgaris (Fresh water algae): > 100 mg/l; static test; OECD Test Guideline 201; (literature value)
	ethanol; ethyl alcohol: EC10 (72 h) Chlorella vulgaris (Fresh water algae): > 10 mg/l; static test; OECD Test Guideline 201; (literature value)
Toxicity to bacteria	propan-2-ol; isopropyl alcohol; isopropanol: EC10 (16 h) Pseudomonas putida: 1,050 mg/l; DIN 38412 (literature value)
	ethanol; ethyl alcohol: EC50 (4 h) Paramaecium caudatum: > 1,000 mg/l; static test (literature value)
Toxicity to soil dwelling organisms	propan-2-ol; isopropyl alcohol; isopropanol: The study is not necessary. Justification: Bioaccumulation is unlikely. Readily biodegradable. Not expected to adsorb on soil.
	ethanol; ethyl alcohol: LC50 (48 h) Eisenia fetida (earthworms): > 0.1 mg/cm2; mortality (literature value)
Toxicity to terrestrial flora	propan-2-ol; isopropyl alcohol; isopropanol: Growth inhibition; EC50 (3 d): > 500 mg/kg; Lactuca sativa (lettuce) (literature value)
	ethanol; ethyl alcohol: Growth; EC10 (6 d): 789 mg/l; Allium cepa (literature value)
Toxicity for other terrestrial non-mammalian fauna	propan-2-ol; isopropyl alcohol; isopropanol: The study is not necessary. Justification: low bioaccumulation potential Unlikely to pose a hazard to birds.
	ethanol; ethyl alcohol: No data available

12.2 Persistence and degradability

Biodegradability	propan-2-ol; isopropyl alcohol; isopropanol: rapidly biodegradable; 5 d; aerobic; Directive 84/449/EEC, C.5 (literature value) ethanol; ethyl alcohol: Readily biodegradable.; > 70 %; 20 d; aerobic; Modified Sturm Test (literature value)

12.3 Bioaccumulative potential

Bioaccumulation	propan-2-ol; isopropyl alcohol; isopropanol: No bioaccumulation is to be expected (log Pow <= 4). ethanol; ethyl alcohol: Bioaccumulation is unlikely. The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

12.4 Mobility in soil

Mobility	propan-2-ol; isopropyl alcohol; isopropanol: Highly mobile in soils Not expected to adsorb on soil. ethanol; ethyl alcohol: Not expected to adsorb on soil. The study is not necessary.

12.5 Results of PBT and vPvB assessment

Results of PBT assessment	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Results of PBT assessment	propan-2-ol; isopropyl alcohol; isopropanol: This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB). ethanol; ethyl alcohol: This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

General advice	propan-2-ol; isopropyl alcohol; isopropanol: None known. ethanol; ethyl alcohol: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	Following pre-treatment and observing the regulations for hazardous wastes, it must be taken to a permitted hazardous wastes landfill or hazardous wastes incinerator.
Contaminated packaging	Can be used after re-conditioning.
waste code of the European Union: EWC	A waste code in accordance with the European Waste Catalogue (EWC) may not be assigned to this product since it admits of a classification only when the

consumer uses it for some purpose.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR	1987
RID	1987
ADN	1987
IMDG	1987
ICAO/IATA	1987

14.2 Proper shipping name

ADR	ALCOHOLS, N.O.S. (isopropyl alcohol, Ethanol)
RID	ALCOHOLS, N.O.S. (isopropyl alcohol, Ethanol)
ADN	ALCOHOLS, N.O.S. (isopropyl alcohol, Ethanol)
IMDG	ALCOHOLS, N.O.S. (isopropyl alcohol, Ethanol)
ICAO/IATA	ALCOHOLS, N.O.S. (isopropyl alcohol, Ethanol)

14.3 Transport hazard class

ADR	3
RID	3
ADN	3
IMDG	3
ICAO/IATA	3

14.4 Packing group

ADR	II
RID	II
ADN	II
IMDG	II
ICAO/IATA	II

14.5 Environmental hazards

ADR	Environmentally hazardous	no
RID	Environmentally hazardous	no
ADN	Environmentally hazardous	no
IMDG	Marine pollutant	no
ICAO/IATA	Environmentally hazardous	no

14.6 Special precautions for user

ADR	Hazard Identification Number		33
	Labels		3
	Tunnel restriction code		(D/E)
IMDG	Labels 3		
	EmS Number 1	F-E	
	EmS Number 2	S-D	
ICAO/IATA	Labels	3	

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Remarks No information available.

SECTION 15: REGULATORY INFORMATION

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

Occupational restrictions Employment restrictions for children and young workers in accordance with Directive 94/33/EC and the respective national provisions are to be observed.

NATIONAL/OTHER REGULATIONS

Legislation on the control of major-accident hazards involving dangerous substances

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

list entry in the directive:: FLAMMABLE LIQUIDS; P5c

Qualifiying quantity 1: 5,000 t; Qualifiying quantity 2: 50,000 t;

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

list entry in the directive:: Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d); 34

Qualifiying quantity 1: 2,500 t; Qualifiying quantity 2: 25,000 t;

NOTIFICATION STATUS

Switzerland. Consolidated Inventory	CH INV	listed (product or constituents are listed)
US. Toxic Substances Control Act	TSCA	listed (product or constituents are listed)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	DSL	listed (product or constituents are listed)
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	listed (product or constituents are listed)
Japan. Kashin-Hou Law List	ENCS (JP)	listed (product or constituents are listed)
Japan. Industrial Safety & Health Law (ISHL) List	ISHL (JP)	listed (product or constituents are listed)
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	listed (product or constituents are listed)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	listed (product or constituents are listed)
China. Inventory of Existing Chemical Substances (IECSC)	INV (CN)	listed (product or constituents are listed)

Please note: the names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in chapter 3.

15.2 Chemical safety assessment

Chemical Safety Assessments have been carried out for these substances.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Safety datasheet sections which have been updated:

Annex

Further information:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

Key or legend to abbreviations and acronyms used in the safety data sheet

ADN	Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
AICS	Australian Inventory of Chemical Substances
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials (US)
BCF	Bioconcentration factor
CLP	Regulation on Classification, Labelling and Packaging of Substances and Mixtures
DIN	Deutsches Institut für Normung
DNEL	Derived No-Effect Level
DSL	Domestic Substances List
EC…	Effect concentration ... %
ENCS	Existing Notified Chemical Substances (Japan)
EWC	European Waste Catalogue
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISHL	Industrial Safety and Health Law (Japan)
ISO	International Organization for Standardization
IUAPC	International Union of Pure and Applied Chemistry
KECI	Korea Existing Chemicals Inventory
LC…	Lethal Concentration, ...%
LD…	Lethal Dose, ...%
MARPOL	International Convention for the Prevention of Pollution From Ships
NDSL	Non-Domestic Substances List
NOAEL	no observable adverse effect level
NOEL/NOEC	No Observed-effect level/concentration
NZIoC	New Zealand Inventory of Chemicals
OECD	Organisation for Economic Co-operation and Development
PBT	persistent, bioaccumulative, toxic
PICCS	Philippine Inventory of Chemicals and Chemical Substances
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport international ferroviaire de marchandises dangereuses
TG	Test Guideline
TRGS	Technische Regeln für Gefahrstoffe
TSCA	Toxic Substances Control Act
vPvB	very persistent, very bioaccumulative
WGK	Wassergefährdungsklasse

Annex

Attachments to the safety data sheet and/or lists of the identified uses for the listed substances can be downloaded using the internet links below.

PROPAN-2-OL; ISOPROPYL ALCOHOL; ISOPROPANOL

http://www.sasolgermany.de/fileadmin/doc/productsafety/Annex/CON000000006_EN_01.pdf

ethanol

http://www.sasolgermany.de/fileadmin/doc/productsafety/Annex/CON000000015_EN_01.pdf