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

1.1 Product identifier				
Trade name	n-Propanol EP			
REACH No.	01-2119486761-29-0002			
Substance name (REACH / CLP)	Propan-1-ol			
.2 Relevant identified uses of the substance or mixture and uses advised against				
Use	Industrial use raw material for pharmaceutical products			
Uses advised against				
1.3 Details of the supplier of the safety da	ata 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 Serious eye damage Category 1 Specific target organ toxicity - single exposure Category 3 (Central nervous system) Highly flammable liquid and vapour. Causes serious eye damage. May cause drowsiness or dizziness.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)



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Hazard pictograms	
Signal word	Danger
Hazard statements H225	Highly flammable liquid and vapour.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
Precautionary statements	
P243	Take precautionary measures against static discharge.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards

Vapours may form explosive mixture with air.

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-1-ol; n-propane

content: <= 100 %			component type: Active ingredient
EC-No.: 200-746-9 REACH No.: 01-2119486761-2	Index-No.: 603-003-00-0 29-0002		CAS-No.: 71-23-8
Classification (Regulation (EC) No 1272/2008):	Flam. Liq. 2 Eye Dam. 1 STOT SE 3	H225 H318 H336	

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



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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	d effects, both acute and delayed
Most important symptoms a	nd

4.3 Indication of any immediate medical attention and special treatment needed

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

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 su	ubstance 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 containr	nent 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	



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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, includi	ng 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	Тур	Control parameters	Update	Basis	
PROPAN-1-OL	TWA TWA	500 mg/m3 200 ppm	2007 2007	EH40 WEL	
PROPAN-1-OL	STEL STEL	625 mg/m3 250 ppm	2007 2007	EH40 WEL	
	Can be abso	Can be absorbed through the skin.			

EUROPEAN OCCUPATIONAL EXPOSURE LIMITS

No data available



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DERIVED NO EFFECT LEVEL (DNEL)

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	1723 mg/m3	
	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	136 mg/kg Body weight/day	
	Inhalation, long-term exposure - systemic effects	268 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	1036 mg/m3	
	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	81 mg/kg Body weight/day	
	Inhalation, long-term exposure - systemic effects	80 mg/m3	
	Oral, long-term exposure - systemic effects	61 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



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PREDICTED NO EFFECT CONCENTRATION (PNEC)

Environmental Compartment	Value	Note	
Fresh water	10 mg/l		
Marine water	1 mg/l		
intermittent release	10 mg/l		
treatment plant	96 mg/l		
Fresh water sediment	22.8 mg/kg	based on dry weight	
Marine sediment	2.28 mg/kg	based on dry weight	
Soil	2.2 mg/kg	based on dry weight	
food		Not relevant / not applicable	

8.2 Exposure controls

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection Hand 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.
	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: Nitrile rubber/nitrile latex Break through time: >= 480 min Layer thickness: 0.35 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, Polyvinylchloride
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.



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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
	рН	No data available
	Melting point/range	-127.5 °C; 1,013 hPa
	Boiling point/boiling range	97 °C; 1,013 hPa
	Flash point	24 °C; 1,013 hPa; closed cup
	Evaporation rate	No data available
	Flammability (solid, gas)	not applicable (liquid)
	Lower explosion limit	2.1 %(V)
	Upper explosion limit	13.5 %(V)
	Vapour pressure	19.9 hPa; 20 °C
		28.2 hPa; 25 °C
	Relative vapour density	2.1
	Relative vapour density	1.02; 20 °C
	Density	0.8037 g/cm3; 20 °C
	Solubility/qualitative	miscible with most organic solvents
	Water solubility	completely miscible
		1,000 g/l; 25 °C
	Partition coefficient: n- octanol/water	log Pow: 0.2; 25 °C
	Ignition temperature	371 °C; 1,013 hPa
	Auto-ignition temperature	400 °C; 1,013 hPa
	Viscosity, dynamic	2.3 mPas; 20 °C
	Explosive properties	Not explosive
	Oxidizing properties	not expected based on structure and functional groups
9.2 (Other data	
	Additional advice	no data



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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	3
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 produc	ts
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-1-ol; n-propanol: LD50 Rat: > 5,000 mg/kg; OECD Test Guideline 401 (literature value) Based on available data, the classification criteria are not met.
Acute inhalation toxicity	propan-1-ol; n-propanol: LC50 Rat: > 20 mg/l; 4 h; OECD Test Guideline 403 (literature value) Based on available data, the classification criteria are not met.
Acute dermal toxicity	propan-1-ol; n-propanol: LD50 Rabbit: > 2,000 - 5,000 mg/kg; OECD Test Guideline 402 (literature value) Based on available data, the classification criteria are not met.
Skin corrosion/irritation	
Skin irritation	propan-1-ol; n-propanol: Rabbit: not irritating; OECD Test Guideline 404 (literature value) Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation





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Eye irritation	propan-1-ol; n-propanol: Rabbit: Risk of serious damage to eyes.; OECD Test Guideline 405 (literature value) Causes serious eye damage.
Respiratory or skin sensitisatio	n
Sensitisation	propan-1-ol; n-propanol: Maximisation Test Guinea pig: not sensitizing; OECD Test Guideline 406 (literature value) Based on available data, the classification criteria are not met.
Germ cell mutagenicity	
Genotoxicity in vitro	propan-1-ol; n-propanol: In vitro tests showed mutagenic effects (literature value)
Remarks	propan-1-ol; n-propanol: Based on available data, the classification criteria are not met.
Carcinogenicity	
Carcinogenicity	propan-1-ol; n-propanol: The substance has been shown to be not genotoxic, therefore it is not expected to have a carcinogenic potential.
Reproductive toxicity	
Reproductive toxicity	propan-1-ol; n-propanol: Rat; OECD Test Guideline 413 Based on available data, the classification criteria are not met.
Teratogenicity	propan-1-ol; n-propanol: Rat; inhalation (vapour); OECD Test Guideline 414 Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses (literature value)
Remarks-Teratogenicity	propan-1-ol; n-propanol: Based on available data, the classification criteria are not met.
STOT - single exposure	
Remarks	propan-1-ol; n-propanol: Inhalation May cause drowsiness or dizziness. (literature value)
STOT - repeated exposure	
Remarks	propan-1-ol; n-propanol: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Repeated dose toxicity	propan-1-ol; n-propanol: Rat; inhalation (vapour); Subacute toxicity; NOAEC: 1000 ppm; OECD Test Guideline 412 (literature value)
	propan-1-ol; n-propanol: Rat; inhalation (vapour); Subchronic toxicity; OECD Test Guideline 413 (literature value)
Aspiration hazard	
Aspiration toxicity	propan-1-ol; n-propanol: Not applicable



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Toxicological information

propan-1-ol; n-propanol: 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.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Tox	icity
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Toxicity to fish	propan-1-ol; n-propanol: LC50 (96 h) Pimephales promelas (fathead minnow): > 100 mg/l; semi-static test; OECD Test Guideline 203 (literature value)
Toxicity to fish - Chronic toxicity	propan-1-ol; n-propanol: The study is not necessary.
Toxicity to daphnia and other aquatic invertebrates	propan-1-ol; n-propanol: EC50 (48 h) Daphnia magna (Water flea): > 100 mg/l ; static test; DIN 38412 (literature value)
Toxicity to daphnia and other aquatic invertebrates - Chronic toxicity	propan-1-ol; n-propanol: NOEC (21 d) Daphnia magna (Water flea): > 100 mg/l; reproduction rate; semi- static test; OECD Test Guideline 211; (literature value) Test substance: Isopropanol
Toxicity to aquatic plants	propan-1-ol; n-propanol: EC50 (48 h) Pseudokirchneriella subcapitata (microalgae): > 100 mg/l ; Growth rate; static test; (literature value)
Toxicity to bacteria	propan-1-ol; n-propanol: IC50 (3 h) activated sludge, domestic: > 1,000 mg/l; static test (literature value)
Toxicity to soil dwelling organisms	propan-1-ol; n-propanol: The study is not necessary. Justification: Bioaccumulation is unlikely. Readily biodegradable. Not expected to adsorb on soil.
Toxicity to terrestrial flora	propan-1-ol; n-propanol: Growth inhibition; EC50 (7 d): > 500 mg/kg; Triticum aestivm (wheat) (literature value)
Toxicity for other terrestrial non-mammalian fauna	propan-1-ol; n-propanol: The study is not necessary. Justification: low bioaccumulation potential Unlikely to pose a hazard to birds.
12.2 Persistence and degradability	
Biodegradability	propan-1-ol; n-propanol: Readily biodegradable.; aerobic; OECD Test Guideline 301D (literature value)
12.3 Bioaccumulative potential	
Bioaccumulation	propan-1-ol; n-propanol: Bioconcentration factor (BCF): 0.88; calculated Bioaccumulation is unlikely.



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12.4 Mobility in soil		
Mobility	propan-1-ol; n-propanol: Adsorption/Soil; Koc: 4.291; log Koc: 0.633; calculated Highly mobile in soils Not expected to adsorb on soil.	
12.5 Results of PBT and vPvB assessment		
Results of PBT assessment	propan-1-ol; n-propanol: Based on available data, the classification criteria are not met.	
12.6 Other adverse effects		
General advice	propan-1-ol; n-propanol: 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	
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1274
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ICAO/IATA	3		
14.4 Packing group			
ADR	III		
RID	III		
ADN	III		
IMDG	III		
ICAO/IATA	III		
4.5 Environmental hazards			
ADR	Environmentally hazardous	no	
RID	Environmentally hazardous	no	
ADN	Environmentally hazardous	no	
IMDG	Marine pollutant	no	
ICAO/IATA	Environmentally hazardous	no	
4.6 Special precautions for	user		
ADR	Hazard Identification Number	30	
	Labels	3	
	Tunnel restriction code	(D/E)	
IMDG	Labels 3		
	EmS Number 1 F-E		
	EmS Number 2 S-D		
ΙCAO/ΙΑΤΑ	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 maior-accident hazards	Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

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



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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	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

propan-1-ol; n-propanol

A Chemical Safety Assessment has been carried out for this substance.

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

SECTION 16: OTHER INFORMATION

H225	Highly flammable liquid and vapour.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
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



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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 voie de navigation interneure 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.

 $http://www.sasolgermany.de/fileadmin/doc/productsafety/Annex/000000016941_EN_01.pdf$