

DIETHYLENE GLYCOL

Version: 8.00

Revision Date 08.09.2017

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier**

Trade name	DIETHYLENE GLYCOL
REACH No.	01-2119457857-21-0008
Substance name (REACH / CLP)	2,2'-oxydiethanol

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

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

1.3 Details of the supplier of the safety data sheet

Company	SASOL Germany GmbH Anckelmannsplatz 1 20537 Hamburg
	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	msds-info.germany@de.sasol.com

1.4 Emergency telephone number

Emergency telephone number	+ 49 (0) 23 65 - 49 22 32
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SECTION 2: HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity Category 4 (Oral) Harmful if swallowed.

2.2 Label elements**Labelling (REGULATION (EC) No 1272/2008)****Hazard pictograms**

Signal word Warning

Hazard statements

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H302	Harmful if swallowed.
Precautionary statements	
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

No hazards to be specially mentioned.

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**2,2'-oxybisethanol; diethylene glycol****component type:** Active ingredient**EC-No.:** 203-872-2**Index-No.:** 603-140-00-6**CAS-No.:** 111-46-6**REACH No.:** 01-2119457857-21-0008**Substance name (REACH / CLP):** 2,2'-oxydiethanol**Classification (Regulation (EC) No 1272/2008):** Acute Tox. 4 (Oral) H302

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 all contaminated clothing immediately. If you feel unwell, seek medical advice (show the label where possible).
If inhaled	Remove from exposure, lie down. If breathing is irregular or stopped, administer artificial respiration. Monitor breathing, give oxygen if necessary. Consult a physician.
In case of skin contact	Wash off with plenty of water.
In case of eye contact	Flush eyes with water as a precaution. If eye irritation persists, consult a specialist.
If swallowed	Do NOT induce vomiting. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed	Symptoms: No information available. Risks: No information available.
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4.3 Indication of any immediate medical attention and special treatment needed**Indication of any immediate medical attention and special treatment needed**

Treatment: No information available.

SECTION 5: FIREFIGHTING MEASURES**5.1 Extinguishing media****Suitable extinguishing media**Water spray, Dry powder, Foam, Carbon dioxide (CO₂)**5.2 Special hazards arising from the substance or mixture****Specific hazards during firefighting**

Dangerous gases or fumes may occur in case of fire.

5.3 Advice for firefighters**Special protective equipment for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

Standard procedure for chemical fires.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures****Personal precautions**

Use personal protective equipment.

6.2 Environmental precautions**Environmental precautions**Avoid subsoil penetration.
Do not flush into surface water or sanitary sewer 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**Wear personal protective equipment.
Avoid contact with skin and eyes.**Advice on protection against fire and explosion**

No special protective measures against fire required.

7.2 Conditions for safe storage, including any incompatibilities**Requirements for storage areas**

Keep tightly closed. Keep in a dry place.

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and containers

Storage class (TRGS 510) 10: Combustible liquids not in Storage Class 3

Other data Protect from frost, heat and sunlight.

container material unsuitable materials: Zinc

7.3 Specific end use(s)

Specific use(s) This information is not available.

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
DIETHYLENE GLYCOL	TWA TWA	100 mg/m ³ 23 ppm	2007 2007	Ireland Exposure Limit Values List

EUROPEAN OCCUPATIONAL EXPOSURE LIMITS

No data available

DERIVED NO EFFECT LEVEL (DNEL)

Substance name: 2,2'-oxydiethanol			
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	43 mg/kg	based on body weight and day
	Inhalation, long-term exposure - systemic effects	44 mg/m ³	Not relevant / not applicable
	dermal, long-term exposure - local effects		Not relevant / not applicable
	Inhalation, long-term exposure - local effects	60 mg/m ³	
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

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	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	21 mg/kg	based on body weight and day
	Inhalation, long-term exposure - systemic effects	12 mg/m3	Not relevant / not applicable
	Oral, long-term exposure - systemic effects		Not relevant / not applicable
	dermal, long-term exposure - local effects		Not relevant / not applicable
	Inhalation, long-term exposure - local effects	12 mg/m3	

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Substance name: 2,2'-oxydiethanol		
Environmental Compartment	Value	Note
Fresh water	10 mg/l	
Marine water	1 mg/l	
intermittent release	10 mg/l	
treatment plant	199,5 mg/l	
Fresh water sediment	20,9 mg/kg	based on dry weight
Marine sediment	2,09 mg/kg	based on dry weight
Soil	1,53 mg/kg	based on dry weight
food		Not relevant / not applicable

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: Nitrile rubber/nitrile latex
Break through time: ≥ 480 min
Layer thickness: 0,35 mm

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Material: butyl-rubber
Break through time: ≥ 480 min
Layer thickness: 0,5 mm

Eye protection

Tightly fitting safety goggles

Protective measures

Avoid contact with eyes. Wear suitable gloves and eye/face protection.

ENVIRONMENTAL EXPOSURE CONTROLS**General advice**

Avoid subsoil penetration.
Do not flush into surface water or sanitary sewer 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	clear
Odour	very faint
Odour Threshold	No valid method available
pH	Not applicable
Melting point/range	ca. -8 °C
Boiling point/boiling range	245 °C; 1.013 hPa
Flash point	146 °C; DIN 51758
Evaporation rate	No data available
Flammability (solid, gas)	not applicable (liquid)
Lower explosion limit	ca. 1 %(V)
Upper explosion limit	No data available
Vapour pressure	< 0,05 hPa; 20 °C
Relative vapour density	> 1
Density	1,116 g/cm ³ ; 20 °C
Water solubility	20 °C; completely miscible
Partition coefficient: n-octanol/water	log Pow: -1,3; (calculated)
Ignition temperature	355 °C; DIN 51794
Auto-ignition temperature	not auto-flammable
Viscosity, dynamic	No data available
Explosive properties	not expected based on structure and functional groups
Oxidizing properties	No data available

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9.2 Other data

None known.

SECTION 10: STABILITY AND REACTIVITY**10.1 Reactivity****Note** Stable**10.2 Chemical stability****Note** Stable under normal conditions.**10.3 Possibility of hazardous reactions****Hazardous reactions** None known.**10.4 Conditions to avoid****Conditions to avoid** None known.**10.5 Incompatible materials to avoid****Materials to avoid** None known.;**10.6 Hazardous decomposition products****Hazardous decomposition products** No decomposition if stored normally.**SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****Acute toxicity****Acute oral toxicity** Acute toxicity estimate : 500 mg/kg; Calculation method**Acute oral toxicity** 2,2'-oxybisethanol; diethylene glycol:
LD50 Rat: > 2.000 mg/kg
(literature value)
Derived from the classification according to Annex VI of Regulation (EC) 1272/2008.
Harmful if swallowed.**Acute inhalation toxicity** 2,2'-oxybisethanol; diethylene glycol:
LC50 Rat: > 4,6 mg/l; 4 h
maximal attainable concentration
(literature value)
Based on available data, the classification criteria are not met.**Acute dermal toxicity** 2,2'-oxybisethanol; diethylene glycol:
LD50 Rabbit: > 2.000 mg/kg;
(literature value)
Based on available data, the classification criteria are not met.**Human experience - Ingestion** 2,2'-oxybisethanol; diethylene glycol:
Harmful if swallowed.
(literature value)

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Skin corrosion/irritation**Skin irritation**

2,2'-oxybisethanol; diethylene glycol:
Rabbit: not irritating; Draize Test
(literature value)
Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation**Eye irritation**

2,2'-oxybisethanol; diethylene glycol:
Rabbit: not irritating
(literature value)
Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation**Sensitisation**

2,2'-oxybisethanol; diethylene glycol:
Maximisation Test Guinea pig: not sensitizing; Maximisation Test
(literature value)
Based on available data, the classification criteria are not met.

Germ cell mutagenicity**Genotoxicity in vitro**

2,2'-oxybisethanol; diethylene glycol:
In vitro tests did not show mutagenic effects
(literature value)

Genotoxicity in vivo

2,2'-oxybisethanol; diethylene glycol:
In vivo tests did not show mutagenic effects
(literature value)

Remarks

2,2'-oxybisethanol; diethylene glycol:
Based on available data, the classification criteria are not met.

Carcinogenicity**Carcinogenicity**

2,2'-oxybisethanol; diethylene glycol:
Animal testing did not show any carcinogenic effects.
(literature value)

Remarks

2,2'-oxybisethanol; diethylene glycol:
Based on available data, the classification criteria are not met.

Reproductive toxicity**Reproductive toxicity**

2,2'-oxybisethanol; diethylene glycol:
Animal testing did not show any effects on fertility.
(literature value)

RemarksReproductive toxicity

2,2'-oxybisethanol; diethylene glycol:
Based on available data, the classification criteria are not met.

Teratogenicity

2,2'-oxybisethanol; diethylene glycol:
Animal testing did not show any effects on foetal development.
(literature value)

Remarks-Teratogenicity

2,2'-oxybisethanol; diethylene glycol:
Based on available data, the classification criteria are not met.

STOT - single exposure**Remarks**

2,2'-oxybisethanol; diethylene glycol:
The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure**Repeated dose toxicity**

2,2'-oxybisethanol; diethylene glycol:
Rat; Oral; 224-day
NOAEL: 128 mg/kg (based on body weight and day)

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	Target Organs: Kidney (literature value)
Aspiration hazard	
Aspiration toxicity	2,2'-oxybisethanol; diethylene glycol: Not applicable
Toxicological information	2,2'-oxybisethanol; diethylene glycol: Toxicokinetics, metabolism and distribution Absorption through skin is possible. The substance is metabolised and excreted.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	2,2'-oxybisethanol; diethylene glycol: LC50 (96 h) Pimephales promelas (fathead minnow): > 100 mg/l ; flow-through test (literature value)
Toxicity to fish - Chronic toxicity	2,2'-oxybisethanol; diethylene glycol: NOEC (7 d) Pimephales promelas (fathead minnow): > 100 mg/l Category approach (literature value)
Toxicity to daphnia and other aquatic invertebrates	2,2'-oxybisethanol; diethylene glycol: EC50 (48 h) Daphnia magna (Water flea): > 100 mg/l ; static test (literature value)
Toxicity to daphnia and other aquatic invertebrates - Chronic toxicity	2,2'-oxybisethanol; diethylene glycol: NOEC Daphnia (water flea): > 100 mg/l; reproduction rate; Category approach (literature value)
Toxicity to aquatic plants	2,2'-oxybisethanol; diethylene glycol: EC5 (8 d) Scenedesmus quadricauda (Green algae): > 100 mg/l ; static test; (literature value)
Toxicity to bacteria	2,2'-oxybisethanol; diethylene glycol: EC20 (30 min) activated sludge, domestic: > 1.995 mg/l; Respiration inhibition; ISO 8192 (literature value)
Toxicity to soil dwelling organisms	2,2'-oxybisethanol; diethylene glycol: LC50 (63 d) Eisenia andrei: 10.974 mg/kg; artificial soil (literature value)
Toxicity to terrestrial flora	2,2'-oxybisethanol; diethylene glycol: ; EC50: 1.779 mg/kg; Hordeum vulgare (literature value)
Toxicity for other terrestrial non-mammalian fauna	2,2'-oxybisethanol; diethylene glycol: No data available

12.2 Persistence and degradability

Biodegradability	2,2'-oxybisethanol; diethylene glycol: Readily biodegradable.; > 70 %; 28 d; aerobic; OECD Test Guideline 301A (literature value)
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12.3 Bioaccumulative potential

Bioaccumulation	2,2'-oxybisethanol; diethylene glycol: Leuciscus idus melanotus; 3 d; Bioconcentration factor (BCF): 100
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Does not accumulate in organisms.
(literature value)

12.4 Mobility in soil**Mobility**

2,2'-oxybisethanol; diethylene glycol:
Adsorption/Soil; Medium: Soil; Koc: 1; log Koc: 0; calculated
Highly mobile in soils
(literature value)

12.5 Results of PBT and vPvB assessment**Results of PBT assessment**

2,2'-oxybisethanol; diethylene glycol:
Based on available data, the classification criteria are not met.

12.6 Other adverse effects**General advice**

2,2'-oxybisethanol; diethylene glycol:
None known.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product**

Can be incinerated, when in compliance with local regulations.

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. The waste code must be determined in agreement with the regional waste disposal authority or company.

SECTION 14: TRANSPORT INFORMATION**14.1 UN number**

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
ICAO/IATA	Not dangerous goods

14.2 Proper shipping name

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
ICAO/IATA	Not dangerous goods

14.3 Transport hazard class

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods

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ICAO/IATA	Not dangerous goods	
14.4 Packing group		
ADR	Not dangerous goods	
RID	Not dangerous goods	
ADN	Not dangerous goods	
IMDG	Not dangerous goods	
ICAO/IATA	Not dangerous goods	
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		
Not classified as dangerous in the meaning of transport regulations.		
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code		
Pollution category	Z	
Remarks	MARPOL NAME: Diethylene glycol	

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.
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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:: Not applicable
Directive 1999/13/EC (VOC)	The question whether this product or components thereof has/have to be considered as volatile organic compound/compounds (VOC) as defined by Directive 1999/13/EU can only be answered when detailed knowledge on the use as solvent in connection with certain activities in certain facilities is available.

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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**2,2'-oxydiethanol**

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

SECTION 16: OTHER INFORMATION**Full text of H-Statements referred to under sections 2 and 3.**

H302 Harmful if swallowed.

Safety datasheet sections which have been updated:

- 2. Hazards identification
- 3. Composition/information on ingredients
- 11. Toxicological information
- 12. Ecological information
- 14. Transport information

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

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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)
EWG	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
IUPAC	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.

2,2'-oxydiethanol

http://www.sasolgermany.de/fileadmin/doc/productsafety/Annex/000000000145_EN_01.pdf