

Product name: SURFYNOL® AD-01

SAFETY DATA SHEET

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name:
SURFYNOL® AD-01

Chemical name:
Alkane diol

Additional identification

Chemical name: 2,4,7,9-Tetramethyl-4,7-Decanediol
Chemical formula: C₁₄H₃₀O₂
INDEX No. -
CAS-No. 17913-76-7
EC No. 451-160-7
REACH Registration No.: 01-0000019050-84

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

Identified uses: Industrial use

Uses advised against: None known.

1.3 Details of the supplier of the safety data sheet

Company Name : Evonik Operations GmbH
Rellinghauser Str. 1-11
45128 Essen
Germany

Telephone : +49 201 173 01
Fax : +49 201 173 3000
E-mail : productsafety-cs@evonik.com

1.4 Emergency telephone number:

24-Hour Health : +49 2365 49 2232
Emergency : +49 2365 49 4423 (Fax)

National Poison Information Service (NPIS)
England, Scotland and Wales: NHS: 111

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

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Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567
Health Hazards

Serious eye irritation Category 2 H319: Causes serious eye irritation.

Environmental Hazards

Chronic hazards to the aquatic environment Category 3 H412: Harmful to aquatic life with long lasting effects.

2.2 Label Elements

Signal Words: Warning

Hazard Statement(s): H319: Causes serious eye irritation.
 H412: Harmful to aquatic life with long lasting effects.

Precautionary Statements
Prevention:

 P264: Wash face, hands and any exposed skin thoroughly after handling.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313: If eye irritation persists: Get medical advice/attention.

Disposal:

P501: Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients
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Chemical name:

Alkane diol

3.1 Substances
Chemical name: 2,4,7,9-Tetramethyl-4,7-Decanediol

INDEX No.:
CAS-No.: 17913-76-7

EC No.: 451-160-7

REACH Registration No.: 01-0000019050-84

Chemical name	Concentration	CAS-No.	EC No.	UK-REACH Registration No.	REACH Registration No.	M-Factor:	Notes

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2,4,7,9-Tetramethyl-4,7-Decanediol	50 - <100%	17913-76-7	451-160-7		01-0000019050-84	No data available.	
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* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

This substance is listed as SVHC.

Classification

Chemical name	Classification	Notes
2,4,7,9-Tetramethyl-4,7-Decanediol	Classification: Eye Irrit.: 2: H319; Aquatic Chronic: 3: H412; Supplemental label information: None known.	None.

SECTION 4: First aid measures
4.1 Description of first aid measures

General information:	Immediately remove contaminated clothing.
Inhalation:	fresh air supply, consult a doctor if feeling unwell.
Skin Contact:	In case of contact with skin wash off with soap and water. In case of discomfort: Supply with medical care.
Eye contact:	In case of contact with eyes rinse thoroughly with plenty of water. If symptoms persist, seek medical advice.
Ingestion:	Thoroughly clean the mouth with water In case of discomfort: Supply with medical care.
Personal Protection for First-aid Responders:	No data available.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:	Serious eye irritation
Hazards:	No data available.

4.3 Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.
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SECTION 5: Firefighting measures
5.1 Extinguishing media

Suitable extinguishing media:	foam, carbon dioxide, dry powder, water spray.
Unsuitable extinguishing media:	High volume water jet.

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- 5.2 Special hazards arising from the substance or mixture:** In the event of fire the following can be released: - carbon dioxide, carbon monoxide Under certain conditions of combustion traces of other toxic substances cannot be excluded
- 5.3 Advice for firefighters**
- Special fire fighting procedures:** No specific precautions.
- Special protective equipment for fire-fighters:** Do not inhale explosion and/or combustion gases. Use self-contained breathing apparatus and wear protective suit

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment.
- 6.1.1 For non-emergency personnel:** No data available.
- 6.1.2 For emergency responders:** No data available.
- 6.2 Environmental Precautions:** Do not allow to enter drains or waterways Prevent product from getting into subsoil/soil.
- 6.3 Methods and material for containment and cleaning up:** Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder). Dispose of absorbed material in accordance with the regulations.
- 6.4 Reference to other sections:** For further information on exposure monitoring and disposal see sections 8 and 13.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling**
- Technical measures:** No data available.
- Local/Total ventilation:** No data available.
- Safe handling advice:** Provide good ventilation of working area (local exhaust ventilation if necessary). Avoid contact with skin and eyes. Do not inhale gases/vapours/aerosols.
- Contact avoidance measures:** No data available.
- 7.2 Conditions for safe storage, including any incompatibilities**
- Safe storage conditions:** Keep container tightly closed in a cool, well-ventilated place. Do not store together with oxidizing agents.
- Safe packaging materials:** No data available.
- 7.3 Specific end use(s):** No further recommendations.

SECTION 8: Exposure controls/personal protection

- 8.1 Control Parameters
Occupational Exposure Limits**

Product name: SURFYNOL® AD-01

None of the components have assigned exposure limits.

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

DNEL-Values

Remarks: DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
2,4,7,9-Tetramethyl-4,7-Decanediol	Workers	Eyes	Local effect;	Low hazard (no threshold derived)
	General population	Inhalation	Systemic, long-term; 0.43 mg/m ³	Repeated dose toxicity
	Workers	Dermal	Systemic, long-term; 0.5 mg/kg	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 24.7 mg/m ³	Effect on fertility
	General population	Inhalation	Systemic, short-term; 1.29 mg/m ³	Repeated dose toxicity
	General population	Dermal	Systemic, long-term; 2.5 mg/kg	Effect on fertility
	General population	Inhalation	Systemic, long-term; 4.35 mg/m ³	Effect on fertility
	General population	Dermal	Systemic, long-term; 0.25 mg/kg	Repeated dose toxicity
	Workers	Dermal	Systemic, short-term; 1.5 mg/kg	Repeated dose toxicity
	General population	Dermal	Systemic, short-term; 0.75 mg/kg	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 1.76 mg/m ³	Repeated dose toxicity
	General population	Oral	Systemic, short-term; 0.75 mg/kg	Repeated dose toxicity
	Workers	Inhalation	Systemic, short-term; 5.28 mg/m ³	Repeated dose toxicity
	Workers	Dermal	Systemic, long-term; 7 mg/kg	Effect on fertility
	General population	Eyes	Local effect;	Low hazard (no threshold derived)
	General population	Oral	Systemic, long-term; 2.5 mg/kg	Effect on fertility
General population	Oral	Systemic, long-term; 0.25 mg/kg	Repeated dose toxicity	
General population	Eyes	Local effect;	Medium hazard (no threshold derived)	
Workers	Eyes	Local effect;	Medium hazard (no threshold derived)	

PNEC-Values

Remarks: PNEC-Values

Critical component	Environmental compartment	PNEC-Values	Remarks
2,4,7,9-Tetramethyl-4,7-Decanediol	Sewage treatment plant	7 mg/l	
	Aquatic (freshwater)	0.053 mg/l	
	Sewage treatment plant	10 mg/l	
	Sediment (marine water)	0.46 mg/kg	
	Aquatic (marine water)	0.005 mg/l	
	Sediment (freshwater)	4.6 mg/kg	
	Soil	0.53 mg/kg	
	Aquatic (marine water)	0.001 mg/l	
	Aquatic (freshwater)	0.006 mg/l	

8.2 Exposure controls
Appropriate Engineering Controls: No data available.

Individual protection measures, such as personal protective equipment

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Eye/face protection:	Safety glasses
Hand Protection:	Additional Information: gloves made of chloroprene (CR, e.g. Neoprene), gloves made of nitril (NBR)
Skin and Body Protection:	protective clothing
Respiratory Protection:	in case of formation of vapours/aerosols: Short term: filter apparatus, combination filter A-P2
Hygiene measures:	Wash hands before breaks and at the end of workday. When using do not eat, drink or smoke. Remove soiled or soaked clothing immediately.
Environmental Controls:	The environmental regulations on the control and monitoring of environmental exposures are to be observed.

SECTION 9: Physical and chemical properties
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9.1 Information on basic physical and chemical properties
Appearance

Physical state:	liquid
Form:	Viscous Liquid
Color:	White
Odor:	of methanol
Odor Threshold:	not measured
Freezing point:	-37 °C Method: EC Method A.1
Boiling Point:	278 °C Method: OECD 103
Flammability:	not measured
Upper/lower limit on flammability or explosive limits	
Explosive limit - upper:	not measured
Explosive limit - lower:	not measured
Flash Point:	> 110 °C Method: EC Method A.9
	137 °C
Auto-ignition temperature:	385 °C Method: EC Method A.15
Decomposition Temperature:	280 °C
pH:	7 at 25 °C Concentration: 10 g/l Concentration: 1 % in Water
Viscosity	
Dynamic viscosity:	1,131 mPa.s at 25 °C
	150 mPa.s at 40 °C
Kinematic viscosity:	165 mm ² /s at 40 °C

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Solubility(ies)

Solubility in Water:	Approximate 1.57 g/l at 19.8 °C Method: OECD 105
Solubility (other):	not measured
Partition coefficient (n-octanol/water):	3.8 at 25 °C Method: OECD 117
Vapor pressure:	Approximate 0.00019 hPa at 20 °C Method: OECD 104
	15.3 mbar at 150 °C
Relative density:	not measured
Density:	0.9 g/cm ³ at 25 °C Method: EC Method A.3
	0.904 g/cm ³ at 21.1 °C
Relative vapor density:	not measured

9.2 Other information

Explosive properties:	not measured
Oxidizing properties:	not oxidizing
Self-ignition:	385 °C 1,013 hPa Method: EC Method A.15
Metal Corrosion:	Not corrosive to metals
Evaporation Rate:	not measured
Surface tension	33.4 mN/m 1.4 mg/l at 20 °C

SECTION 10: Stability and reactivity

10.1 Reactivity:	see section "Possibility of hazardous reactions".
10.2 Chemical Stability:	The product is stable under normal conditions.
10.3 Possibility of hazardous reactions:	No hazardous reactions with proper storage and handling
10.4 Conditions to avoid:	None with proper storage and handling.
10.5 Incompatible Materials:	Oxidizing agents.
10.6 Hazardous Decomposition Products:	None with proper storage and handling.

SECTION 11: Toxicological information
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Product name: SURFYNOL® AD-01

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Inhalation:	Information on effects are given below.
Skin Contact:	Information on effects are given below.
Eye contact:	Information on effects are given below.
Ingestion:	Information on effects are given below.

Acute toxicity (list all possible routes of exposure)

Oral

Product:	LD 50, Rat, Female, Male, > 2,000 mg/kg, OECD 423
Components:	
2,4,7,9-Tetramethyl-4,7-Decanediol	LD 50, Rat, Female, Male, > 2,000 mg/kg, OECD 423

Dermal

Product:	LD 50, Rat, Female, Male, > 2,000 mg/kg, OECD 402
Components:	
2,4,7,9-Tetramethyl-4,7-Decanediol	LD 50, Rat, Female, Male, > 2,000 mg/kg, OECD 402

Inhalation

Product:	No data available.
Components:	
2,4,7,9-Tetramethyl-4,7-Decanediol	Not toxic after single exposure, Vapour, No data available. Not toxic after single exposure, Dust and mist, No data available.

Repeated dose toxicity

Product:	No data available.
Components:	
2,4,7,9-Tetramethyl-4,7-Decanediol	No data available.

Skin Corrosion/Irritation

Product:	Not irritating, OECD 404, (Rabbit, 4 h), Not irritating
Components:	
2,4,7,9-Tetramethyl-4,7-Decanediol	Not irritating, OECD 404, Rabbit, 4 h

Serious Eye Damage/Eye Irritation

Product:	Irritating., OECD 405, Rabbit, Irritating.
Components:	
2,4,7,9-Tetramethyl-4,7-Decanediol	Irritating., OECD 405, Rabbit

Respiratory or Skin Sensitization

Product:	Local Lymph Node Assay (LLNA), OECD 429, Mouse, Not a skin sensitizer.
Components:	
2,4,7,9-Tetramethyl-4,7-Decanediol	Local Lymph Node Assay (LLNA), OECD 429, Mouse, Not a skin sensitizer.

Carcinogenicity

Product:	No data available.
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Product name: SURFYNOL® AD-01

Components:

2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Germ Cell Mutagenicity

No data available.

In vitro

Product:

Chromosomal aberration, OECD 473: , negative
Bacterial reverse mutation assay, OECD 471: , negative
gene mutation test, OECD 476: , negative, The data are derived from the evaluations or test results achieved with similar products (conclusion by analogy).

Components:

2,4,7,9-Tetramethyl-4,7-Decanediol Chromosomal aberration, OECD 473: , negative
Ames test, OECD 471: , negative
gene mutation test, OECD 476: , (analogy)

In vivo

Product:

No data available.

Components:

2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Reproductive toxicity

Product:

No data available. Oral

Components:

2,4,7,9-Tetramethyl-4,7-Decanediol Oral

Specific Target Organ Toxicity - Single Exposure

Product:

No data available.

Components:

2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product:

No data available.

Components:

2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Aspiration Hazard

Product:

Not classified

Components:

2,4,7,9-Tetramethyl-4,7-Decanediol Not classified

11.2 Information on other hazards

Other information

Product:

No data available.

SECTION 12: Ecological information

Product name: SURFYNOL® AD-01

12.1 Toxicity:

Acute hazards to the aquatic environment:

Fish

Product: LC 50, Oncorhynchus mykiss, 96 h, Approximate, 53.2 mg/l OECD 203

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol LC 50, Oncorhynchus mykiss, 96 h, Approximate, 53.2 mg/l OECD 203

Aquatic Invertebrates

Product: EC 50, Daphnia magna, 48 h, Approximate, 127 mg/l OECD 202

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol EC 50, Daphnia magna, 48 h, Approximate, 127 mg/l OECD 202

Toxicity to Aquatic Plants

Product: ErC50 (Algae (Pseudokirchneriella subcapitata), 72 h): 127 mg/l (OECD 201)

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol EC 50 (Algae (Pseudokirchneriella subcapitata), 72 h): Approximate 127 mg/l (OECD 201)

Toxicity to microorganisms

Product: EC 50, activated sludge, 3 h, > 1,000 mg/l, OECD 209

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol EC 50, activated sludge, 3 h, > 1,000 mg/l, OECD 209

Toxicity to soil dwelling organisms

Product: No data available.

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Toxicity to terrestrial organisms

Product: No data available.

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Aquatic Invertebrates

Product: No data available.

Components:
 2,4,7,9-Tetramethyl-4,7-Decanediol No data available.

Toxicity to Aquatic Plants

Product: No data available.

Components:
 2,4,7,9-Tetramethyl-4,7- NOEC (Algae (Pseudokirchneriella subcapitata), 72 h): 6.25 mg/l (OECD

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Decanediol 201)

Toxicity to microorganisms**Product:** EC 50, activated sludge, 3 h, > 1,000 mg/l, OECD 209**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol EC 50, activated sludge, 3 h, > 1,000 mg/l, OECD 209**Toxicity to soil dwelling organisms****Product:** No data available.**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol No data available.**Toxicity to terrestrial organisms****Product:** No data available.**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol No data available.**12.2 Persistence and Degradability****Biodegradation****Product:** 44 %, 28 d, OECD 301 F, The product is not biodegradable.**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol 44 %, 28 d, OECD 301 F, The product is not biodegradable., aerobic**12.3 Bioaccumulative potential****Bioconcentration Factor (BCF)****Product:** No data available.**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol No data available.**Partition Coefficient n-octanol / water (log Kow)****Product:** 3.8, 25 °C, OECD 117**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol 3.8, 25 °C, OECD 117**12.4 Mobility in soil:****Product** No data available.**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol No data available.**12.5 Results of PBT and vPvB assessment:****Product** No data available.**Components:**
2,4,7,9-Tetramethyl-4,7- Decanediol No data available.**12.6 Other adverse effects:**

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Other hazards

Product: Do not allow to enter soil, waterways or waste water canal.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: No data available.

Disposal methods: In accordance with local authority regulations, take to special waste incineration plant

Contaminated Packaging: If empty contaminated containers are recycled or disposed of, the receiver must be informed about possible hazards.

SECTION 14: Transport information

14.1 UN/ID No.

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I: Not applicable

15.2 Chemical safety assessment: No chemical safety assessment was carried out for this product.

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Product name: SURFYNOL® AD-01**Rotterdam convention**

Not applicable

Kyoto protocol

Not applicable

SECTION 16: Other information**Abbreviations and acronyms:**

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EIGA - European Industrial Gases Association; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Key literature references and sources for data: No data available.**Training information:** Comply with national laws regulating employee instruction.**Revision Information** Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Product name: SURFYNOL® AD-01

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