Safety Data Sheet according to (EC) No 1907/2006 as amended

LOCTITE EDAG PF 407C E&C known as ELECTRODAG PF-407C 1 KG

SDS No. : 325648
V004.2
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

LOCTITE EDAG PF 407C E&C known as ELECTRODAG PF-407C 1 KG
UFI: MPTM-EWQF-T206-JSYQ

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

Intended use:
PTF ink

1.3. Details of the supplier of the safety data sheet

Henkel Ltd
Adhesives
Wood Lane End
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (1442) 278000

SDSinfo.Adhesive@henkel.com
For Safety Data Sheet updates please visit our website www.mysds.henkel.com or www.henkel-adhesives.com.

1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

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

2.2. Label elements

Label elements (CLP):

Hazard pictogram:



Signal word: Warning

Hazard statement: H319 Causes serious eye irritation.

Precautionary statement: P280 Wear eye protection.

2.3. Other hazards

None if used properly.

Following substances are present in a concentration ≥ the concentration limit for depiction in Section 3 and fulfill the criteria for PBT/vPvB, or were identified as endocrine disruptor (ED):

This mixture does not contain any substances in a concentration ≥ the concentration limit for depiction in Section 3 that are assessed to be a PBT, vPvB or ED.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS No. EC No UK-REACH-Reg. No.	Concentration	Classification	Specific Conc. Limits, M-factors and ATEs	Add. Information
2-(2-butoxyethoxy)ethanol 112-34-5 203-961-6	40- < 60 %	Eye Irrit. 2, H319		EU OEL
2-Butoxyethyl acetate 112-07-2 203-933-3	20- < 40 %	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332		EU OEL
2-Butoxyethanol 111-76-2 203-905-0	0,1- < 1 %	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Acute Tox. 4, H302 Acute Tox. 3, H331	dermal:ATE = > 5.000 mg/kg oral:ATE = 1.200 mg/kg inhalation:ATE = 3 mg/l;vapour	EU OEL

If no ATE values are displayed, please refer to LD/LC50 values in Section 11.
For full text of the H - statements and other abbreviations see section 16 "Other information".

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Fresh air, oxygen supply, warmth; seek specialist medical attention.

Skin contact:
Immediately wash skin thoroughly with soap and water.

Eye contact:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

In case of adverse health effects seek medical advice.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed
EYE: Irritation, conjunctivitis.

4.3. Indication of any immediate medical attention and special treatment needed
See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Fine water spray
Carbon dioxide, foam, powder

Extinguishing media which must not be used for safety reasons:
Water jet (solvent-containing product).

5.2. Special hazards arising from the substance or mixture
Formation of toxic gases is possible during heating or in fires.

5.3. Advice for firefighters
Wear protective equipment.
Wear self-contained breathing apparatus.

Additional information:
Cool endangered containers with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
Danger of slipping on spilled product.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
Dispose of contaminated material as waste according to Section 13.
Remove with liquid-absorbing material (sand, peat, sawdust).

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid skin and eye contact.
Ensure that workrooms are adequately ventilated.
See advice in section 8
Take measures to prevent the build-up of electrostatic charges.

Hygiene measures:
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke while working.

7.2. Conditions for safe storage, including any incompatibilities

Store in sealed original container.

Keep away from heat and direct sunlight.

7.3. Specific end use(s)
PTF ink

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Great Britain

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	10	67,5	Time Weighted Average (TWA):		EH40 WEL
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	10	67,5	Time Weighted Average (TWA):	Indicative	ECTLV
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	15	101,2	Short Term Exposure Limit (STEL):	Indicative	ECTLV
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	15	101,2	Short Term Exposure Limit (STEL):	15 minutes	EH40 WEL
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]			Skin designation:	Can be absorbed through the skin.	EH40 WEL
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]	20	133	Time Weighted Average (TWA):		EH40 WEL
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]	20	133	Time Weighted Average (TWA):	Indicative	ECTLV
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]	50	333	Short Term Exposure Limit (STEL):	Indicative	ECTLV
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]	50	332	Short Term Exposure Limit (STEL):	15 minutes	EH40 WEL
2-Butoxyethyl acetate 112-07-2 [2-Butoxyethyl acetate]			Skin designation:	Can be absorbed through the skin.	ECTLV
Graphite 7782-42-5 [GRAPHITE, INHALABLE DUST]		10	Time Weighted Average (TWA):		EH40 WEL
Graphite 7782-42-5 [GRAPHITE, RESPIRABLE DUST]		4	Time Weighted Average (TWA):		EH40 WEL
Carbon black 1333-86-4 [CARBON BLACK]		3,5	Time Weighted Average (TWA):		EH40 WEL
Carbon black 1333-86-4 [CARBON BLACK]		7	Short Term Exposure Limit (STEL):	15 minutes	EH40 WEL
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]	25	123	Time Weighted Average (TWA):		EH40 WEL
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]			Skin designation:	Can be absorbed through the skin.	EH40 WEL
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]	20	98	Time Weighted Average (TWA):	Indicative	ECTLV
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]	50	246	Short Term Exposure Limit (STEL):	Indicative	ECTLV
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]	50	246	Short Term Exposure Limit (STEL):	15 minutes	EH40 WEL
2-Butoxyethanol 111-76-2 [2-Butoxyethanol]			Skin designation:	Can be absorbed through the skin.	ECTLV

Occupational Exposure Limits

Valid for
Ireland

Ingredient [Regulated substance]	ppm	mg/m^3	Value type	Short term exposure limit category / Remarks	Regulatory list
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	10	67,5	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	10	67,5	Time Weighted Average (TWA):	Indicative	ECTLV
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	15	101,2	Short Term Exposure Limit (STEL):	Indicative	ECTLV
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	12	101,2	Short Term Exposure Limit (STEL):	15 minutes Indicative OELV	IR_OEL
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]	20	133	Time Weighted Average (TWA):	Indicative	ECTLV
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]	50	333	Short Term Exposure Limit (STEL):	Indicative	ECTLV
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE (EGBEA)]	50	333	Short Term Exposure Limit (STEL):	15 minutes Indicative OELV	IR_OEL
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE (EGBEA)]			Skin designation:	Can be absorbed through the skin.	IR_OEL
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE (EGBEA)]	20	133	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
2-Butoxyethyl acetate 112-07-2 [2-Butoxyethyl acetate]			Skin designation:	Can be absorbed through the skin.	ECTLV
Graphite 7782-42-5 [GRAPHITE (ALL FORMS EXCEPT FIBRES)]		2	Time Weighted Average (TWA):		IR_OEL
Carbon black 1333-86-4 [CARBON BLACK]		3	Time Weighted Average (TWA):		IR_OEL
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL (EGBE)]	50	246	Short Term Exposure Limit (STEL):	15 minutes Indicative OELV	IR_OEL
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL (EGBE)]	20	98	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL (EGBE)]			Skin designation:	Can be absorbed through the skin.	IR_OEL
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]	20	98	Time Weighted Average (TWA):	Indicative	ECTLV
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]	50	246	Short Term Exposure Limit (STEL):	Indicative	ECTLV
2-Butoxyethanol 111-76-2 [2-Butoxyethanol]			Skin designation:	Can be absorbed through the skin.	ECTLV

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
2-Butoxyethyl acetate 112-07-2	sewage treatment plant (STP)		90 mg/l				
2-Butoxyethyl acetate 112-07-2	aqua (freshwater)		0,304 mg/l				
2-Butoxyethyl acetate 112-07-2	aqua (marine water)		0,0304 mg/l				
2-Butoxyethyl acetate 112-07-2	sediment (freshwater)				2,03 mg/kg		
2-Butoxyethyl acetate 112-07-2	sediment (marine water)				0,203 mg/kg		
2-Butoxyethyl acetate 112-07-2	Soil				0,415 mg/kg		
2-Butoxyethyl acetate 112-07-2	aqua (intermittent releases)		0,56 mg/l				
2-Butoxyethyl acetate 112-07-2	oral				60 mg/kg		
2-butoxyethanol 111-76-2	sewage treatment plant (STP)		66 mg/l				

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
2-(2-butoxyethoxy)ethanol 112-34-5	Workers	inhalation	Acute/short term exposure - local effects		101,2 mg/m3	
2-(2-butoxyethoxy)ethanol 112-34-5	Workers	inhalation	Long term exposure - local effects		67,5 mg/m3	
2-(2-butoxyethoxy)ethanol 112-34-5	Workers	dermal	Long term exposure - local effects			
2-(2-butoxyethoxy)ethanol 112-34-5	General population	inhalation	Long term exposure - local effects			
2-(2-butoxyethoxy)ethanol 112-34-5	General population	inhalation	Acute/short term exposure - local effects			
2-(2-butoxyethoxy)ethanol 112-34-5	General population	oral	Long term exposure - systemic effects		6,25 mg/kg	
2-(2-butoxyethoxy)ethanol 112-34-5	General population	dermal	Long term exposure - local effects			
2-Butoxyethyl acetate 112-07-2	Workers	inhalation	Long term exposure - systemic effects		133 mg/m3	
2-Butoxyethyl acetate 112-07-2	Workers	inhalation	Acute/short term exposure - local effects		333 mg/m3	
2-Butoxyethyl acetate 112-07-2	Workers	dermal	Long term exposure - systemic effects		169 mg/kg	
2-Butoxyethyl acetate 112-07-2	Workers	dermal	Acute/short term exposure - systemic effects		120 mg/kg	
2-Butoxyethyl acetate 112-07-2	General population	inhalation	Long term exposure - systemic effects		80 mg/m3	
2-Butoxyethyl acetate 112-07-2	General population	inhalation	Acute/short term exposure - local effects		200 mg/m3	
2-Butoxyethyl acetate 112-07-2	General population	dermal	Long term exposure - systemic effects		102 mg/kg	
2-Butoxyethyl acetate 112-07-2	General population	dermal	Acute/short term exposure - systemic effects		72 mg/kg	
2-Butoxyethyl acetate 112-07-2	General population	oral	Long term exposure - systemic effects		8,6 mg/kg	
2-Butoxyethyl acetate 112-07-2	General population	oral	Acute/short term exposure - systemic effects		36 mg/kg	
2-butoxyethanol 111-76-2	Workers	inhalation	Long term exposure - systemic effects		98 mg/m3	
2-butoxyethanol 111-76-2	Workers	inhalation	Acute/short term exposure - local effects		246 mg/m3	
2-butoxyethanol 111-76-2	Workers	inhalation	Acute/short term exposure - systemic effects		1091 mg/m3	
2-butoxyethanol 111-76-2	General population	inhalation	Long term exposure - systemic effects		59 mg/m3	
2-butoxyethanol 111-76-2	General population	inhalation	Acute/short term exposure - systemic effects		426 mg/m3	
2-butoxyethanol 111-76-2	General population	inhalation	Acute/short term exposure - local		147 mg/m3	

			effects			
2-butoxyethanol 111-76-2	General population	oral	Long term exposure - systemic effects		6,3 mg/kg	
2-butoxyethanol 111-76-2	General population	oral	Acute/short term exposure - systemic effects		26,7 mg/kg	
2-butoxyethanol 111-76-2	Workers	dermal	Long term exposure - systemic effects			
2-butoxyethanol 111-76-2	Workers	dermal	Acute/short term exposure - local effects			
2-butoxyethanol 111-76-2	General population	dermal	Acute/short term exposure - local effects			

Biological Exposure Indices:

Ingredient [Regulated substance]	Parameters	Biological specimen	Sampling time	Conc.	Basis of biol. exposure index	Remark	Additional Information
2-Butoxyethanol 111-76-2 [2-BUTOXYETHANOL]	Butoxyacetic acid	Creatinine in urine	Sampling time: End of shift.		UKEH40BMGV		

8.2. Exposure controls:

Engineering controls:
Ensure good ventilation/suction at the workplace.

Respiratory protection:
In case of aerosol formation, we recommend wearing of appropriate respiratory protection equipment with ABEK P2 filter (EN 14387).
This recommendation should be matched to local conditions.
The product should only be used at workplaces with intensive ventilation/extraction.

Hand protection:
Chemical-resistant protective gloves (EN 374). Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374): Isobutylene-isoprene rubber (IIR; >= 0.7 mm thickness) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Isobutylene-isoprene rubber (IIR; >= 0.7 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Protective eye equipment should conform to EN166.
Protective goggles

Skin protection:
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.
Suitable protective clothing

Advices to personal protection equipment:
The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions.
Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Delivery form	paste
Colour	Black
Odor	Solvent

Physical state	liquid
Melting point	Not applicable, Product is a liquid
Solidification temperature	< 0 °C (< 32 °F)
Initial boiling point	192 °C (377.6 °F)
Flammability	The product is not flammable.
Explosive limits	
lower	0,7 %(V);
upper [mass/vol]	8,5 g/m3 Upper/lower explosion limit
Explosive limits	
lower	0,85 %(V);
upper	26,40 %(V); Upper/lower explosion limit
Flash point	78 °C (172.4 °F)
Auto-ignition temperature	> 200 °C (> 392 °F)
Decomposition temperature	Not applicable, Substance/mixture is not self-reactive, no organic peroxide and does not decompose under foreseen conditions of use
pH	Not applicable, Product is non-soluble (in water).
Viscosity (kinematic) (20 °C (68 °F);)	> 10.000 mm2/s
Viscosity, dynamic ()	35.000 - 50.000 cp no method / method unknown
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	Insoluble
Partition coefficient: n-octanol/water	Not applicable Mixture
Vapour pressure (20 °C (68 °F))	< 1 hPa
Density (20 °C (68 °F))	1,13 g/cm3 no method / method unknown
Relative vapour density: (20 °C)	5,5000 (Air = 1)
Particle characteristics	Not applicable Product is a liquid

9.2. Other information

Other information not applicable for this product

SECTION 10: Stability and reactivity

10.1. Reactivity
Reaction with strong oxidants.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
No decomposition if used according to specifications.

10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
None if used for intended purpose.
In case of fire toxic gases can be released.

SECTION 11: Toxicological information

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

Acute oral toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Value type	Value	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	LD50	> 2.000 mg/kg	rat	EU Method B.1 (Acute Toxicity (Oral))
2-Butoxyethyl acetate 112-07-2	LD50	1.880 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
2-Butoxyethanol 111-76-2	Acute toxicity estimate (ATE)	1.200 mg/kg		Expert judgement

Acute dermal toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Value type	Value	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	LD50	2.764 mg/kg	rabbit	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
2-Butoxyethyl acetate 112-07-2	LD50	1.500 mg/kg	rabbit	not specified
2-Butoxyethanol 111-76-2	Acute toxicity estimate (ATE)	> 5.000 mg/kg		Expert judgement
2-Butoxyethanol 111-76-2	LD50	> 2.000 mg/kg	guinea pig	OECD Guideline 402 (Acute Dermal Toxicity)
2-Butoxyethanol 111-76-2	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)

Acute inhalative toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Value type	Value	Test atmosphere	Exposure time	Species	Method
2-Butoxyethanol 111-76-2	Acute toxicity estimate (ATE)	3 mg/l	vapour	4 h		Expert judgement

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	not irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
2-Butoxyethyl acetate 112-07-2	not irritating		rabbit	BASF Test
2-Butoxyethanol 111-76-2	irritating	4 h	rabbit	EU Method B.4 (Acute Toxicity: Dermal Irritation / Corrosion)

Serious eye damage/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	irritating		rabbit	equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion)
2-Butoxyethyl acetate 112-07-2	not irritating		rabbit	BASF Test
2-Butoxyethanol 111-76-2	irritating	24 h	rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result	Test type	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	not sensitising	Guinea pig maximisation test	guinea pig	Magnusson and Kligman Method
2-Butoxyethanol 111-76-2	not sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)

Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
2-Butoxyethanol 111-76-2	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
2-Butoxyethanol 111-76-2	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
2-Butoxyethanol 111-76-2	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
2-Butoxyethanol 111-76-2	negative	intraperitoneal		mouse	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Carcinogenicity

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Sex	Method
2-Butoxyethanol 111-76-2	not carcinogenic	inhalation: vapour	2 years 6 hours/day, 5 days/week	rat	male/female	OECD Guideline 451 (Carcinogenicity Studies)
2-Butoxyethanol 111-76-2	not carcinogenic	inhalation: vapour	2 years 6 hours/day, 5 days/week	mouse	male/female	OECD Guideline 451 (Carcinogenicity Studies)

Reproductive toxicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result / Value	Test type	Route of application	Species	Method
2-Butoxyethanol 111-76-2	NOAEL P 720 mg/kg NOAEL F1 720 mg/kg NOAEL F2 720 mg/kg	Two generation study	oral: drinking water	mouse	not specified

STOT-single exposure:

No data available.

STOT-repeated exposure:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Based on available data, the classification criteria are not met.

Hazardous substances CAS-No.	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	NOAEL < 50 mg/kg	oral: gavage	90 days 5 days/week	rat	not specified
2-(2-butoxyethoxy)ethanol 112-34-5	NOAEL 2 - 6 ppm	inhalation	90 days	rat	not specified
2-(2-butoxyethoxy)ethanol 112-34-5	NOAEL > 2.000 mg/kg	dermal	13 weeks 6 hours/day, 5 days/week	rat	not specified
2-Butoxyethanol 111-76-2	NOAEL 0,121 mg/l	inhalation	42 or 90 days 6 hours/day, 5 days/week	rat	not specified
2-Butoxyethanol 111-76-2	NOAEL < 69 mg/kg	oral: drinking water	90 d continous	rat	equivalent or similar to OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Aspiration hazard:

No data available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

No data available.

SECTION 12: Ecological information

General ecological information:

Do not empty into drains / surface water / ground water.

12.1. Toxicity

Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	LC50	1.300 mg/l	96 h	Lepomis macrochirus	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-Butoxyethyl acetate 112-07-2	LC50	80 mg/l	48 h	Leuciscus idus	DIN 38412-15
2-Butoxyethanol 111-76-2	LC50	1.474 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-Butoxyethanol 111-76-2	NOEC	> 100 mg/l	21 d	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 204 (Fish, Prolonged Toxicity Test: 14-day Study)

Toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	EC50	3.300 mg/l	24 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-Butoxyethyl acetate 112-07-2	EC50	37 mg/l	48 h	Daphnia magna	DIN 38412, part 11
2-Butoxyethanol 111-76-2	EC50	1.550 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
2-Butoxyethanol 111-76-2	NOEC	100 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	NOEC	> 100 mg/l	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-(2-butoxyethoxy)ethanol 112-34-5	EC50	> 100 mg/l	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Butoxyethyl acetate 112-07-2	EC10	> 500 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09
2-Butoxyethyl acetate 112-07-2	EC50	> 500 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09
2-Butoxyethanol 111-76-2	EC50	1.840 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Butoxyethanol 111-76-2	NOEC	286 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity (microorganisms):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
2-(2-butoxyethoxy)ethanol 112-34-5	EC10	> 1.995 mg/l	30 min	activated sludge, industrial	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
2-Butoxyethyl acetate 112-07-2	EC10	720 mg/l	17 h		not specified
2-Butoxyethanol 111-76-2	EC0	1.000 mg/l	30 min		not specified

12.2. Persistence and degradability

Biodegradability (Screening Tests):
The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
2-(2-butoxyethoxy)ethanol 112-34-5	inherently biodegradable	aerobic	100 %	9 d	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
2-(2-butoxyethoxy)ethanol 112-34-5	readily biodegradable	aerobic	> 60 %	28 d	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
2-Butoxyethyl acetate 112-07-2	readily biodegradable	aerobic	76 %	30 d	EU Method C.4-E (Determination of the "Ready" BiodegradabilityClosed Bottle Test)
2-Butoxyethanol 111-76-2	readily biodegradable	aerobic	73 %	30 d	EU Method C.4-E (Determination of the "Ready" BiodegradabilityClosed Bottle Test)

(Bio)degradability (Simulation Tests):
No data available.

12.3. Bioaccumulative potential

Partition Coefficient (octanol/water)
The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	LogPow	Temperature	Method
2-(2-butoxyethoxy)ethanol 112-34-5	1	20 °C	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
2-Butoxyethyl acetate 112-07-2	1,51		OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
2-Butoxyethanol 111-76-2	0,81	25 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

Bioconcentration factor (BCF)
No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT / vPvB / PMT / vPvM assessment

PBT/vPvB
This mixture does not contain any substances that are assessed to be a PBT or vPvB.
Based on available data, the classification criteria are not met.

PMT/vPvM
This mixture does not contain any substances that are assessed to be a PMT or vPvM.
Based on available data, the classification criteria are not met.

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects

The product contains organic solvents which are insoluble in water. According to the requirements of the ATV regulations for the dis charge of wastewater from commercial and industrial plant, organic solvents which are immiscible with water can only be dis charged to an extent which corresponds to their solubility in water. The local discharge regulations take precedence.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
In consultation with the responsible local authority, must be subjected to special treatment.

Waste code

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.
080312

SECTION 14: Transport information

14.1. UN number or ID number

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

14.2. UN proper shipping name

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

14.3. Transport hazard class(es)

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

14.4. Packing group

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

14.5. Environmental hazards

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.6. Special precautions for user

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

Ozone Depleting Substance (ODS) (Regulation (EC) No 2024/590):	Not applicable
Prior Informed Consent (PIC) (Regulation (EU) No 649/2012):	Not applicable
Persistent organic pollutants (Regulation (EU) 2019/1021):	Not applicable

VOC content (2010/75/EU)	20,8 %
Seveso III (2012/18/EU):	Not applicable

National regulations/information (Great Britain):

Remarks	Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, e.g COSHH Essentials. EH40 Occupational Exposure Limits Chemicals (Hazard Information & Packaging for Supply) Regulations. The Personnel Protective Equipment at Work Regulations. The Carriage of Dangerous Goods by Road Regulations. The Health & Safety at Work Act 1974. (Note: Use latest editions/amendments of above referenced documents.)

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H332 Harmful if inhaled.

Abbreviations and acronyms:

ADG(-Code): Australian Dangerous Goods (Code)
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road
ASTM: American Society for Testing and Materials
ATE: acute toxicity estimate
AS: Australian Standard
AwSV: Ordinance on Installations for the Handling of Substances Hazardous to Water
CAS: Chemical Abstract Service
CLP: Regulation (EC) No 1272/2008
CMR: cancerogenic, mutagenic or reprotoxic
DIN: German Institute for Standardization
ECx: Effective concentration (x% effective level)
ECHA: European Chemicals Agency
EC-Nummer: Substance number in the EU-inventories EINECS/ELINCS
ECTLV: European community threshold limit value
ED:Substance identified as having endocrine disrupting properties
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
EN : European Standard
ENCS: Japanese chemical inventory
EPA: US Environmental Protection Agency
EU: European Union
EU EXPLD1: Substance listed in Annex I, Reg (EC) No. 2019/1148
EU EXPLD2: Substance listed in Annex II, Reg (EC) No. 2019/1148
EWC: European Waste Catalogue
GHS: Globally Harmonised System for Classification and Labelling of Chemicals
GLP: Good Laboratory Practice
HSNO: Hazardous Substances and New Organisms
IARC: International Agency for Research of Cancer
IATA: International Air Transport Association
IBC-Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50: half maximal inhibitory concentration
ICAO: International Civil Aviation Organization
IMDG-Code: International Maritime Code for Dangerous Goods
IMO: International Maritime Organization
ISO: International Standardization Organisation
LC50: Median lethal concentration
LD50: Median lethal dose
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
n.o.s.: not otherwise specified
NO(A)EC: No (adverse) effect concentration
NO(A)EL: No (adverse) effect level
NZS: New Zealand Standard
OECD: Organisation for Economic Co-operation and Development
OEL: Occupational Exposure Limit
OPPT: US EPA Office of Pollution Prevention and Toxics
OPPTS: US EPA Office of Prevention, Pesticides and Toxic Substances
PBT: Persistent, bioaccumulative, toxic
PMT: Persistent, mobile and toxic
(Q)SAR: (Quantitative) structure–activity relationship
REACH: Regulation (EC) No. 1907/2006
RID: Regulations concerning the International Transport of Dangerous Goods by Rail

SADT: Self Accelerating Decomposition Temperature
SDS: Safety Data Sheet
STOT: Specific Target Organ Toxicity
STOT SE: Specific Target Organ Toxicity - single exposure
STOT RE: Specific Target Organ Toxicity - repeated exposure
SUSMP: Standard for the Uniform Scheduling of Medicines and Poisons
SVHC: Substance of very high concern (REACH Candidate List)
TRGS: German Technical Rules for hazardous substances
UN: United Nations
VOC: Volatile Organic Compound
814.018 VOC Reg CH: Swiss Ordinance 814.018 on the Incentive Tax on Volatile Organic Compounds
vPvB: Very persistent, very bioaccumulative
vPvM: Very persistent and very mobile
VwVwS: Administrative Regulation on Substances Hazardous to Waters
WGK: Water hazard class

Further information:

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