



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

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

SDS No. : 325648
V002.6

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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

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

Wood Lane End

HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 1442 278000

Fax-no.: +44 1442 278071

ua-productsafety.uk@uk.henkel.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

H319 Causes serious eye irritation.

Category 2

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.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Base substances of preparation:
solvent
Pigment

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

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
2-(2-Butoxyethoxy)ethanol 112-34-5	203-961-6 01-2119475104-44	25- 50 %	Eye Irrit. 2 H319
Ethylene glycol, monobutyl ether acetate 112-07-2	203-933-3 01-2119475112-47	< 25 %	Acute Tox. 4; Inhalation H332 Acute Tox. 4; Dermal H312

For full text of the H - statements and other abbreviations see section 16 "Other information".
Substances without classification may have community workplace exposure limits available.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air, consult doctor if complaint persists.

Skin contact:
Rinse with running water and soap. Apply replenishing cream. Change all contaminated clothing. If necessary, see a dermatologist.

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

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:

Carbon dioxide, foam, powder
Water spray jet

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 self-contained breathing apparatus.
Wear protective equipment.

Additional information:

Cool endangered containers with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid skin and eye contact.
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

Take up with liquid-absorbing material (sand).
Dispose of contaminated material as waste according to Section 13.

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
Avoid open flames and sources of ignition.

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/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	15	101,2	Short Term Exposure Limit (STEL):		EH40 WEL
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	ECLTV
2-(2-Butoxyethoxy)ethanol 112-34-5 [2-(2-BUTOXYETHOXY)ETHANOL]	15	101,2	Short Term Exposure Limit (STEL):	Indicative	ECLTV
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]	50	332	Short Term Exposure Limit (STEL):		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	ECLTV
2-Butoxyethyl acetate 112-07-2 [2-BUTOXYETHYL ACETATE]	50	333	Short Term Exposure Limit (STEL):	Indicative	ECLTV
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]		7	Short Term Exposure Limit (STEL):		EH40 WEL
Carbon black 1333-86-4 [CARBON BLACK]		3,5	Time Weighted Average (TWA):		EH40 WEL

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
2-(2-Butoxyethoxy)ethanol 112-34-5	aqua (freshwater)					1 mg/L	
2-(2-Butoxyethoxy)ethanol 112-34-5	aqua (marine water)					0,1 mg/L	
2-(2-Butoxyethoxy)ethanol 112-34-5	aqua (intermittent releases)					3,9 mg/L	
2-(2-Butoxyethoxy)ethanol 112-34-5	sediment (freshwater)				4 mg/kg		
2-(2-Butoxyethoxy)ethanol 112-34-5	sediment (marine water)				0,4 mg/kg		
2-(2-Butoxyethoxy)ethanol 112-34-5	STP					200 mg/L	
2-(2-Butoxyethoxy)ethanol 112-34-5	oral				56 mg/kg		
2-(2-Butoxyethoxy)ethanol 112-34-5	soil				0,4 mg/kg		

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	Long term exposure - systemic effects		67,5 mg/m ³	
2-(2-Butoxyethoxy)ethanol 112-34-5	Workers	Dermal	Long term exposure - systemic effects		20 mg/kg bw/day	
2-(2-Butoxyethoxy)ethanol 112-34-5	general population	Inhalation	Acute/short term exposure - local effects		60,7 mg/m ³	
2-(2-Butoxyethoxy)ethanol 112-34-5	general population	Inhalation	Long term exposure - systemic effects		40,5 mg/m ³	
2-(2-Butoxyethoxy)ethanol 112-34-5	general population	Dermal	Long term exposure - systemic effects		50 mg/kg bw/day	
2-(2-Butoxyethoxy)ethanol 112-34-5	Workers	Inhalation	Acute/short term exposure - local effects		101,2 mg/m ³	
2-(2-Butoxyethoxy)ethanol 112-34-5	Workers	Inhalation	Long term exposure - local effects		67,5 mg/m ³	
2-(2-Butoxyethoxy)ethanol 112-34-5	general population	oral	Long term exposure - systemic effects		5 mg/kg bw/day	
2-(2-Butoxyethoxy)ethanol 112-34-5	general population	Inhalation	Long term exposure - local effects		40,5 mg/m ³	

Biological Exposure Indices:

None

8.2. Exposure controls:

Engineering controls:

Ensure good ventilation/extraction.

Respiratory protection:

In case of aerosol formation, we recommend wearing of appropriate respiratory protection equipment with ABEK P2 filter.
This recommendation should be matched to local conditions.

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 goggles

Skin protection:

Suitable protective clothing

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

Appearance	paste paste black
Odor	Solvent
Odour threshold	No data available / Not applicable
pH	Not applicable
Initial boiling point	192 °C (377.6 °F)
Flash point	78 °C (172.4 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure	< 1 mm hg
Density ()	1,13 g/cm ³
Bulk density	No data available / Not applicable
Viscosity ()	35.000 - 50.000 cp
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Soluble
Solidification temperature	No data available / Not applicable
Melting point	Not determined
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	
lower	0,7 % (V)
upper [mass/vol]	8,5 g/m ³
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

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 stored and applied as directed.

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 toxicological effects****General toxicological information:**

Narcotic effects at higher concentrations.

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

Skin irritation:

Prolonged or repeated contact may cause skin irritation.

Eye irritation:

Causes serious eye irritation.

Acute oral toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
2-(2- Butoxyethoxy)ethanol 112-34-5	LD50	> 2.000 mg/kg	oral		rat	EU Method B.1 (Acute Toxicity (Oral))
Ethylene glycol, monobutyl ether acetate 112-07-2	LD50	2.300 mg/kg	oral		rat	

Acute dermal toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
2-(2- Butoxyethoxy)ethanol 112-34-5	LD50	2.800 mg/kg	dermal		rabbit	

Skin corrosion/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
2-(2- Butoxyethoxy)ethanol 112-34-5	not irritating		rabbit	Draize Test
Ethylene glycol, monobutyl ether acetate 112-07-2	not irritating		rabbit	BASF Test

Serious eye damage/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
2-(2- Butoxyethoxy)ethanol 112-34-5	moderately irritating		rabbit	
Ethylene glycol, monobutyl ether acetate 112-07-2	not irritating		rabbit	BASF Test

Respiratory or skin sensitization:

Hazardous components CAS-No.	Result	Test type	Species	Method
2-(2- Butoxyethoxy)ethanol 112-34-5	not sensitising	Guinea pig maximisa- tion test	guinea pig	Magnusson and Kligman Method

Germ cell mutagenicity:

Hazardous components 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)

Repeated dose toxicity

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
2-(2- Butoxyethoxy)ethanol 112-34-5	LOAEL=51 - 65 mg/kg	oral: gavage	90 days 5 days/week	rat	
2-(2- Butoxyethoxy)ethanol 112-34-5	NOAEL=<< 50 mg/kg	oral: gavage	90 days 5 days/week	rat	
2-(2- Butoxyethoxy)ethanol 112-34-5	NOAEL=2 - 6 ppm	inhalation	90 days	rat	
2-(2- Butoxyethoxy)ethanol 112-34-5	NOAEL=> 2.000 mg/kg		13 weeks 6 hours/day, 5 days/week	rat	

SECTION 12: Ecological information**General ecological information:**

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

Other adverse effects:

Do not empty into drains, soil or bodies of water.

12.1. Toxicity

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
2-(2-Butoxyethoxy)ethanol 112-34-5	LC50	1.300 mg/l	Fish	96 h	Lepomis macrochirus	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-(2-Butoxyethoxy)ethanol 112-34-5	EC50	3.300 mg/l	Daphnia	24 h	Daphnia magna	
2-(2-Butoxyethoxy)ethanol 112-34-5	EC50	> 100 mg/l	Algae	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
	NOEC	> 100 mg/l	Algae	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Ethylene glycol, monobutyl ether acetate 112-07-2	LC50	80 mg/l	Fish	48 h	Leuciscus idus	DIN 38412-15
Ethylene glycol, monobutyl ether acetate 112-07-2	EC50	37 mg/l	Daphnia	48 h	Daphnia magna	
Ethylene glycol, monobutyl ether acetate 112-07-2	EC50	> 500 mg/l	Algae	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09
	EC10	> 500 mg/l	Algae	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09

12.2. Persistence and degradability

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
2-(2-Butoxyethoxy)ethanol 112-34-5	readily biodegradable	aerobic	> 60 %	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Ethylene glycol, monobutyl ether acetate 112-07-2	readily biodegradable	aerobic	76 %	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)

12.3. Bioaccumulative potential / 12.4. Mobility in soil

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
2-(2-Butoxyethoxy)ethanol 112-34-5	0,56					
Ethylene glycol, monobutyl ether acetate 112-07-2	1,51					OECD Guideline 107 (Partition Coefficient (n- octanol / water), Shake Flask Method)

12.5. Results of PBT and vPvB assessment

Hazardous components CAS-No.	PBT/vPvB
2-(2-Butoxyethoxy)ethanol 112-34-5	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Other adverse effects

No data available.

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**

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

not applicable

SECTION 15: Regulatory information

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

VOC content 21,3 %
(1999/13/EC)

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

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.)
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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:

H312 Harmful in contact with skin.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.