



DRIVING SURFACE PERFECTION

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
 SDS Ref. (EU): HBPORED
 Date of issue: 20/04/2015 Revision date: 14/10/2019 Supersedes: 20/08/2019 Version: 7.5

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

1.1. Product identifier

Product form : Mixture
 Trade name : BPO HARDENER
 Type of product : Hardener
 Product group : BPO Hardener

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

1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial
 For professional use only
 Function or use category : Hardener (Crosslinker)

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

U-POL LIMITED
 Denington Road, Wellingborough
 Northants. NN8 2QH - UK
 T +44 (0) 1933 230310
technicalsupport@u-pol.com - www.u-pol.com

1.4. Emergency telephone number

Emergency number : CHEMTREC - +44 (0) 870 8200418 (24 hrs)

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
United Kingdom	NHS England, Scotland & Wales	-	Call 111 or a Doctor	In Northern Ireland, contact your local GP or pharmacist during normal hours (www.gpoutofhours.hscni.net)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Organic Peroxides, Type E H242
 Serious eye damage/eye irritation, Category 2 H319
 Skin sensitisation, Category 1 H317
 Hazardous to the aquatic environment — Acute Hazard, Category 1 H400
 Hazardous to the aquatic environment — Chronic Hazard, Category 1 H410
 Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

May cause an allergic skin reaction. Causes serious eye irritation. Very toxic to aquatic life.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02 GHS07 GHS09

Signal word (CLP) :

Warning

Hazardous ingredients :

dibenzoyl peroxide; benzoyl peroxide

Hazard statements (CLP) :

H242 - Heating may cause a fire.
 H317 - May cause an allergic skin reaction.
 H319 - Causes serious eye irritation.
 H410 - Very toxic to aquatic life with long lasting effects.

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 - Keep only in original packaging.
P261 - Avoid breathing fume, vapours.
P280 - Wear eye protection, protective clothing, protective gloves.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P403+P235 - Store in a well-ventilated place. Keep cool.

Labelling according to: exemption for packages of a capacity of 125ml or less

Hazard pictograms (CLP) :



GHS02

GHS07

GHS09

Signal word (CLP) :

Warning

Hazardous ingredients :

dibenzoyl peroxide; benzoyl peroxide

Hazard statements (CLP) :

H317 - May cause an allergic skin reaction.

Precautionary statements (CLP) :

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
dibenzoyl peroxide; benzoyl peroxide	(CAS-No.) 94-36-0 (EC-No.) 202-327-6 (EC Index-No.) 617-008-00-0	25 - 75	Org. Perox. B, H241 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
ethanediol; ethylene glycol	(CAS-No.) 107-21-1 (EC-No.) 203-473-3 (EC Index-No.) 603-027-00-1	0.1 - 10	Acute Tox. 4 (Oral), H302

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact : May cause an allergic skin reaction.
Symptoms/effects after eye contact : Eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Carbon monoxide. Carbon dioxide. Benzene.

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

5.3. Advice for firefighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
- Other information : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Safety glasses. Protective clothing. Gloves.
- Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing vapours, fume.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Do not allow to dry. Collect spillage.
- Methods for cleaning up : Mechanically recover the product.
- Other information : Ensure adequate ventilation. Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Take precautions against electrostatic charges. Avoid contact with skin and eyes. Avoid breathing vapours, fume. Wear personal protective equipment.
- Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool.
- Storage temperature : 5 - 25 °C (recommened)
- Storage area : Store in a well-ventilated place.
- Special rules on packaging : Keep only in original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

BPO HARDENER		
United Kingdom	Local name	Dibenzoyl peroxide
United Kingdom	WEL TWA (mg/m ³)	5 mg/m ³
ethanediol; ethylene glycol (107-21-1)		
EU	Local name	Ethylene glycol
EU	IOELV TWA (mg/m ³)	52 mg/m ³
EU	IOELV TWA (ppm)	20 ppm
EU	IOELV STEL (mg/m ³)	104 mg/m ³
EU	IOELV STEL (ppm)	40 ppm
EU	Notes	Skin
EU	Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Ireland	Local name	Ethane-1,2-diol
Ireland	OEL (8 hours ref) (mg/m ³)	10 mg/m ³ particulate 52 mg/m ³ vapour

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

ethanediol; ethylene glycol (107-21-1)		
Ireland	OEL (8 hours ref) (ppm)	20 ppm vapour
Ireland	OEL (15 min ref) (mg/m ³)	104 mg/m ³ vapour
Ireland	OEL (15 min ref) (ppm)	40 ppm vapour
Ireland	Notes (IE)	Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body), IOELV (Indicative Occupational Exposure Limit Values)
Ireland	Regulatory reference	Code of Practice for the Chemical Agents Regulations 2018
United Kingdom	Local name	Ethane-1,2-diol
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ 52 mg/m ³
United Kingdom	WEL TWA (ppm)	20 ppm
United Kingdom	WEL STEL (mg/m ³)	104 mg/m ³
United Kingdom	WEL STEL (ppm)	40 ppm
United Kingdom	Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Exposure limit values for the other components

dimethyl phthalate (131-11-3)			
Ireland	Local name	Dimethyl phthalate	
Ireland	OEL (8 hours ref) (mg/m ³)	5 mg/m ³	
Ireland	OEL (15 min ref) (mg/m ³)	10 mg/m ³	
Ireland	Regulatory reference	Code of Practice for the Chemical Agents Regulations 2018	
United Kingdom	Local name	Dimethyl phthalate	
United Kingdom	WEL TWA (mg/m ³)	5 mg/m ³	
United Kingdom	WEL STEL (mg/m ³)	10 mg/m ³	
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE	

BPO HARDENER

DNEL/DMEL (Workers)

Long-term - systemic effects, dermal 13.3 mg/kg bodyweight/day

Long-term - systemic effects, inhalation 39 mg/m³

DNEL/DMEL (General population)

Acute - systemic effects, oral 2 mg/kg bodyweight

PNEC (Water)

PNEC aqua (freshwater) 0.00002 mg/l

PNEC aqua (marine water) 0.000002 mg/l

PNEC aqua (intermittent, freshwater) 0.000602 mg/l

PNEC (Sediment)

PNEC sediment (freshwater) 0.0127 mg/kg dwt

PNEC sediment (marine water) 0.00127 mg/kg dwt

PNEC (Soil)

PNEC soil 0.0025 mg/kg dwt

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

BPO HARDENER

PNEC (STP)

PNEC sewage treatment plant 0.35 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Personal protective equipment:

Gloves. Protective clothing. Safety glasses.

Materials for protective clothing:

Impermeable clothing

Hand protection:

Protective gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Protective gloves	Neoprene rubber (HNBR), Nitrile rubber (NBR)	2 (> 30 minutes)	≥0.14mm		EN 374-3

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

Personal protective equipment symbol(s):



Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Paste.
Colour	: Various.
Odour	: characteristic.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Flammability (solid, gas)	: May cause fire
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: Not applicable
Density	: ≈ 1.1 g/cm ³
Solubility	: insoluble in water.

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Not applicable

9.2. Other information

SADT	: 50 °C
VOC content	: 0 g/l

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

SADT.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Benzene.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

dimethyl phthalate (131-11-3)

LD50 oral rat	8200 mg/kg bodyweight (Rat, Experimental value, Oral)
LD50 dermal rabbit	> 12000 mg/kg bodyweight (Rabbit, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	> 10.4 mg/l (6 h, Rat, Experimental value, Inhalation (vapours))

ethanediol; ethylene glycol (107-21-1)

LD50 oral rat	7712 mg/kg bodyweight (according to BASF-internal standards, Rat, Male / female, Experimental value, Aqueous solution, Oral, 7 day(s))
LD50 dermal	> 3500 mg/kg bodyweight (Mouse, Male / female, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	> 2.5 mg/l (6 h, Rat, Male / female, Experimental value, Inhalation (aerosol))

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

dibenzoyl peroxide; benzoyl peroxide (94-36-0)

IARC group	3 - Not classifiable
------------	----------------------

Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Very toxic to aquatic life.
-------------------	-------------------------------

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Hazardous to the aquatic environment, short-term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) : Very toxic to aquatic life with long lasting effects.

ethanediol; ethylene glycol (107-21-1)	
LC50 fish 1	40761 mg/l (96 h, Salmo gairdneri, Static system)
EC50 Daphnia 1	> 10000 mg/l (24 h, Daphnia magna)
EC50 96h algae (1)	6.5 - 13 g/l (Selenastrum capricornutum, Growth)

12.2. Persistence and degradability

ethanediol; ethylene glycol (107-21-1)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.47 g O ₂ /g substance
Chemical oxygen demand (COD)	1.24 g O ₂ /g substance
ThOD	1.29 g O ₂ /g substance
BOD (% of ThOD)	0.36

12.3. Bioaccumulative potential

ethanediol; ethylene glycol (107-21-1)	
BCF fish 1	10 (72 h, Leuciscus idus)
BCF other aquatic organisms 1	0.21 - 0.6 (Procambarus sp., Chronic)
BCF other aquatic organisms 2	190 (24 h, Algae)
Log Pow	-1.34 (Experimental value)
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

ethanediol; ethylene glycol (107-21-1)	
Surface tension	48 mN/m (20 °C)
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Results of PBT and vPvB assessment

Component	
ethanediol; ethylene glycol (107-21-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information






In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3108	3108	3108	3108	3108
14.2. UN proper shipping name				
ORGANIC PEROXIDE TYPE E, SOLID	ORGANIC PEROXIDE TYPE E, SOLID	Organic peroxide type e, solid	ORGANIC PEROXIDE TYPE E, SOLID	ORGANIC PEROXIDE TYPE E, SOLID

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Transport document description				
UN 3108 ORGANIC PEROXIDE TYPE E, SOLID, 5.2, (D), ENVIRONMENTALLY HAZARDOUS	UN 3108 ORGANIC PEROXIDE TYPE E, SOLID, 5.2, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 3108 Organic peroxide type e, solid, 5.2, ENVIRONMENTALLY HAZARDOUS	UN 3108 ORGANIC PEROXIDE TYPE E, SOLID, 5.2, ENVIRONMENTALLY HAZARDOUS	UN 3108 ORGANIC PEROXIDE TYPE E, SOLID, 5.2, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
5.2	5.2	5.2	5.2	5.2
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : P1
Special provisions (ADR) : 122, 274
Limited quantities (ADR) : 500g
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P520
Mixed packing provisions (ADR) : MP4
Transport category (ADR) : 2
Special provisions for carriage - Packages (ADR) : V1
Special provisions for carriage - Loading, unloading and handling (ADR) : CV15, CV22, CV24
Tunnel restriction code (ADR) : D
EAC code : 1W

Transport by sea

Special provisions (IMDG) : 122, 274
Packing instructions (IMDG) : P520
EmS-No. (Fire) : F-J
EmS-No. (Spillage) : S-R
Stowage category (IMDG) : D
Stowage and handling (IMDG) : SW1
Segregation (IMDG) : SG35, SG36
Properties and observations (IMDG) : Decomposes at elevated temperatures or in a fire. Burns vigorously. Insoluble in water. Contact with the eyes and skin should be avoided. May evolve irritant or toxic fumes.

Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : 570
PCA max net quantity (IATA) : 10kg
CAO packing instructions (IATA) : 570
CAO max net quantity (IATA) : 25kg
Special provisions (IATA) : A20
ERG code (IATA) : 5L

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Inland waterway transport

Classification code (ADN)	: P1
Special provisions (ADN)	: 122, 274
Limited quantities (ADN)	: 500 g
Excepted quantities (ADN)	: E0
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: P1
Special provisions (RID)	: 122, 274
Limited quantities (RID)	: 500g
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P520
Mixed packing provisions (RID)	: MP4
Transport category (RID)	: 2
Special provisions for carriage – Packages (RID)	: W7
Special provisions for carriage - Loading, unloading and handling (RID)	: CW22, CW24, CW29
Colis express (express parcels) (RID)	: CE10
Hazard identification number (RID)	: 539

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

VOC content : 0 g/l
Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Org. Perox. B	Organic Peroxides, Type B
Org. Perox. E	Organic Peroxides, Type E
Skin Sens. 1	Skin sensitisation, Category 1
H241	Heating may cause a fire or explosion.
H242	Heating may cause a fire.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.

BPO HARDENER

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

H410	Very toxic to aquatic life with long lasting effects.
------	---

SDS EU (REACH Annex II)

For professional use only.

The information contained within this Safety Data Sheet (SDS) is believed to be correct as of the date issued however it is subject to change from time to time. It does not purport to be all inclusive or exhaustive and shall only be used as a guide. U-POL makes no warranties, expressed or implied, including but not limited to, any implied warranty of fitness for a given purpose or usage. It is the Buyers responsibility to ensure the suitability of the products for their own use and to check the information is up to date. U-POL cannot be held responsible for the suitability of use for any of its products, considering the wide range of factors such as application, substrates and handling methods. Since these conditions of use are outside of our control, the company shall not be held liable for any damage resulting from handling or from contact with the product detailed. Moreover, addition of reducers, hardeners or other additives over and above U-POL's recommendations for use, may substantially alter the composition and hazards of the product. U-POL data sheets are available via the U-POL website at WWW.U-POL.COM.