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

1.1. Product identifier

Product Name **BEPD**

Chemical Name	CAS No	EC No	REACH registration number
2-Butyl-2-ethylpropanediol	115-84-4	204-111-7	01-2119450133-52-0000

Pure substance/mixture Substance

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

Industrial Manufacture of substances. Industrial manufacturing of polymers and of oligomers. Formulation and (re)packing of substances and mixtures. Distribution and storage. Use as laboratory reagent.

Application Raw material: Coatings.

Uses advised against Not identified.

1.3. Details of the supplier of the safety data sheet

Manufacturer
Perstorp Oxo Belgium AB
Durmakker 33
Havennummer 8768A
BE-9940 Evergem, Belgium
Tel. +32 9 257 17 17
Fax +32 9 253 26 78
www.perstorp.com
E-mail address productinfo@perstorp.com

1.4. Emergency telephone number

Europe (+)1 760 476 3961 (contract no: 334101)

Asia Pacific (+)1 760 476 3960 (contract no: 334101)

SECTION 2: Hazards identification

Hazards description

Eye contact: Causes severe eye irritation. Risk of burns (in case the product is delivered in molten form).

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Serious eye damage/eye irritation Category 2 - (H319)

2.2. Label elements

Symbols/Pictograms

Signal word
Warning

Hazard statements

H319 - Causes serious eye irritation

Precautionary Statements
P280 - Wear protective gloves and eye/face protection
P264 - Wash hands thoroughly after handling
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

Contains: 2-Butyl-2-ethylpropanediol

2.3. Other hazards
May be harmful if swallowed.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical Name	EC No	CAS No	REACH registration number	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
2-Butyl-2-ethylpropanediol	204-111-7	115-84-4	01-2119450133-52-0000	90-100	Eye Irrit. 2 (H319)

Full text of H- and EUH-phrases: see section 16

Additional information
No information available

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Emergency eyewash facilities must be located in the vicinity of where the product is handled.

Inhalation Remove to fresh air. Rinse mouth with water. If irritation persists get medical advice/attention.

Skin contact In contact with molten product immediately flush with cold water for at least 10 minutes. Do not pull solidified product off the skin. In case of burn injury immediately get medical attention.

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Use lukewarm water if possible. Keep eye wide open while rinsing. If eye irritation persists: Get medical advice/attention. After contact with the molten/hot product, cool rapidly with cold water. Seek immediate medical attention/advice.

Ingestion Clean mouth with water and drink afterwards plenty of water. If a large quantity has been ingested or you feel unwell, get medical advice/attention.

Self-protection of the first aider
Avoid contact with skin, eyes or clothing.

4.2. Most important symptoms and effects, both acute and delayed
Eye contact: Causes severe irritation (tears, blurred vision and redness). Risk of burns (in case the product is delivered in molten form).

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
All types of extinguishing media are suitable. Use fire extinguishing methods suitable to surrounding conditions.

Unsuitable extinguishing media
High volume water jet.

5.2. Special hazards arising from the substance or mixture
Thermal decomposition can lead to release of irritating and toxic gases and vapours.

Hazardous combustion products
Carbon monoxide (CO), Carbon dioxide (CO2).

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

Additional information
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Keep unprotected persons away from molten/hot product if released. Wear protective gloves and protective clothing, Tight sealing safety goggles, Rubber boots.

6.2. Environmental precautions
Minimize the area spreading and cover the drains. Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional ecological information.

6.3. Methods and material for containment and cleaning up
Methods for containment
If molten/hot product is released, pick up mechanically when cooled.
Methods for cleaning up
Clean contaminated surface thoroughly. Use: Water (with cleaning agent).

6.4. Reference to other sections
See Section 7,8,13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Use personal protection recommended in Section 8.

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
No special measures are necessary.

7.3. Specific end use(s)
For details, see the separate exposure scenario(s).

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Exposure Limits
Keep personal exposure levels below Derived No Effect Level (DNEL) and national exposure limit values (if existing).

Derived No Effect Level (DNEL) - worker

2-Butyl-2-ethylpropanediol (115-84-4)			
Type	Exposure route	DNEL	Remarks
Chronic effects, systemic	Inhalation	5.3	mg/m³

Chronic effects, systemic	Dermal	1.5	mg/kg bw/d

Derived No Effect Level (DNEL) - Consumer

2-Butyl-2-ethylpropanediol (115-84-4)			
Type	Exposure route	DNEL	Remarks
Chronic effects, systemic	Oral	0.75	mg/kg bw/d
Chronic effects, systemic	Inhalation	1.3	mg/m^3
Chronic effects, systemic	Dermal	0.75	mg/kg bw/d

Predicted No Effect Concentration (PNEC)

2-Butyl-2-ethylpropanediol (115-84-4)		
Environmental compartment	Predicted No Effect Concentration (PNEC)	Remarks
Freshwater	0.1	mg/l
Intermittent	1	mg/l
Marine water	0.01	mg/l
Impact on Sewage Treatment	6.5	mg/l

8.2. Exposure controls

Appropriate engineering controls

Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/face protection	Tight sealing safety goggles.
Hand Protection	Wear protective gloves. Butyl rubber. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.
Skin and body protection	Normal work clothes for the chemical industry (long legs and sleeves). If any risk of getting in contact with hot product - use heat-resistant protective clothing.
Respiratory protection	None under normal use conditions. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental exposure controls

No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Solid or Melt
white

Odour	Mild
Odour threshold	No information available

Property	**Value**	**Remarks • Method**
pH		Not applicable
Melting point / freezing point	41 °C / 106 °F	OECD 102
Boiling point / boiling range	264 °C / 507 °F	OECD Test No. 103: Boiling Point
Flash point	136 °C / 277 °F	CC (closed cup) Regulation (EC) No. 440/2008, Annex, A.9
Evaporation rate		No information available
Flammability (solid, gas)	Not flammable	EU Method A.10
Explosive limits		
Upper explosive limits		Not applicable
Lower explosive limits		Not applicable
Vapour pressure	0.08 Pa	Calculation method SPARC, MPBPWIN (v1.43) @25°C
Vapour density		No information available
Relative density	0.97	ISO 1183-1 @20 °C
Water solubility	8.8 g/L	OECD Test No. 105: Water Solubility @20°C
Solubility(ies)		No information available
Partition coefficient	2.2	log Pow @25°C OECD Test No. 117: Partition

		Coefficient (n-octanol/water), HPLC Method
Autoignition temperature		Not applicable
Decomposition temperature		Not determined
Kinematic viscosity		No information available
Dynamic viscosity		Not determined
Explosive properties	Not explosive.	
Oxidising properties	Not oxidizing.	
Density		No information available
Bulk density		No information available

9.2. Other information
No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
There exists no specific test data for this product. For further information, see the subsequent subsections of this chapter.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
None under normal use conditions. Reacts with: Strong oxidising agents.

10.4. Conditions to avoid
None under normal use conditions.

10.5. Incompatible materials
Incompatible with oxidising agents.

10.6. Hazardous decomposition products
Thermal decomposition can lead to release of irritating and toxic gases and vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure
Dermal. Inhalation.

Symptoms related to the physical, chemical and toxicological characteristics
See Section 4 for more information.

Numerical measures of toxicity

Acute toxicity
May be harmful if swallowed.

2-Butyl-2-ethylpropanediol (115-84-4)				
Method	Species	Exposure route	Effective dose	Remarks
Regulation (EC) No. 440/2008, Annex, B.1 bis	Rat	Oral	2900	mg/kg LD50 (lethal dose)
OECD Test No. 402: Acute Dermal Toxicity	Rat	Dermal	2000	mg/kg LD0

Skin corrosion/irritation
Non-irritating to the skin.

2-Butyl-2-ethylpropanediol (115-84-4)			
Method	Species	Exposure route	Results:
Regulation (EC) No. 440/2008,	Rabbit	Dermal	Non-irritant

Annex, B.4			
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal	Non-irritant

Serious eye damage/eye irritation
Causes serious eye irritation.

2-Butyl-2-ethylpropanediol (115-84-4)			
Method	Species	Exposure route	Results:
Regulation (EC) No. 440/2008, Annex, B.5	Rabbit	Eye	Irritating to eyes

Respiratory or skin sensitisation
No sensitising effects known.

2-Butyl-2-ethylpropanediol (115-84-4)			
Method	Species	Exposure route	Results:
Regulation (EC) No. 440/2008, Annex, B.6	Guinea pig	Skin	Not a skin sensitiser

Germ cell mutagenicity
Not mutagenic.

2-Butyl-2-ethylpropanediol (115-84-4)		
Method	Species	Results:
OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test	in vitro	Negative
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro	Negative
OECD Test No. 474: Mammalian Erythrocyte Micronucleus Test	Mouse	Negative

Carcinogenicity
Since all in vitro and in vivo mutagenicity studies are negative, there is no hint for any carcinogenic potential.

Reproductive toxicity
This product does not contain any known or suspected reproductive hazards.

2-Butyl-2-ethylpropanediol (115-84-4)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 414: Pre-natal Development Toxicity Study	Rat	Oral	1000	mg/kg bw/d NOAEL

STOT - single exposure No information available

STOT - repeated exposure

2-Butyl-2-ethylpropanediol (115-84-4)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat female	Oral	150	mg/kg bw/d NOAEL
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat male	Oral	15	mg/kg bw/d NOAEL
OECD Test No. 407: Repeated Dose 28-day Oral Toxicity Study in Rodents	Rat	Oral	1000	mg/kg bw/d NOAEL

Aspiration hazard
No information available.

SECTION 12: Ecological information

12.1. Toxicity
Low toxicity to aquatic organisms.

2-Butyl-2-ethylpropanediol (115-84-4)					
Method	Species	Exposure route	Effective dose	Exposure time	Remarks
OECD Test No. 203: Fish, Acute Toxicity Test	Oncorhynchus mykiss (rainbow trout)	Freshwater	>100	96h	mg/l LC50 (lethal concentration)
OECD Test No. 202: Daphnia sp. Acute Immobilization Test	Daphnia magna	Freshwater	>100	48h	mg/l EC50 (effective concentration)
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Selenastrum capricornutum	Freshwater	>100	72h	mg/l ErC50
OECD Test No. 209: Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)	Bacteria toxicity	Freshwater	650	3h	mg/l EC50 (effective concentration)
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Selenastrum capricornutum	Freshwater	45	72h	mg/l NOEC

12.2. Persistence and degradability
Not readily biodegradable. The substance is inherently biodegradable and therefore has no potential to persist.

2-Butyl-2-ethylpropanediol (115-84-4)			
Method	Value	Exposure time	Results:
OECD Test No. 301F: Ready Biodegradability: Manometric Respirometry Test (TG 301 F)	<7%	28d	Not readily biodegradable
OECD Test No. 302B: Inherent Biodegradability: Zahn-Wellens/ EVPA Test	79%	28d	The substance is inherently biodegradable and therefore has no potential to persist.
OECD Test No. 111: Hydrolysis as a Function of pH	>365 days		Hydrolysis , t1/2

12.3. Bioaccumulative potential
Based on the partition coefficients of the ingredients the product is not expected to bioaccumulate in organisms.

Chemical Name	**Partition coefficient**	**Bioconcentration factor (BCF)**
2-Butyl-2-ethylpropanediol	2.2	

12.4. Mobility in soil
The substance is not expected to adsorb to a high degree to suspended solids and sediment based upon the log Pow.

12.5. Results of PBT and vPvB assessment
This substance does not meet the criteria for classification as PBT or vPvB.

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste from residues/unused products
This material and its container must be disposed of as hazardous waste. Incinerate at a licensed installation.

Contaminated packaging
Contaminated packaging materials must be disposed of in the same manner as the product. Thoroughly emptied and clean packaging may be recycled.

Waste codes / waste designations according to EWC / AVV
Waste from residues/unused products: 16 03 05*.

Other Information
Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

ADR Road transport

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	None

RID Rail transport

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	None

IMDG Sea transport

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA Air transport

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	None

SECTION 15: Regulatory information

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

International Regulations
Not applicable.

European Union
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Germany
Water hazard class (WGK) slightly hazardous to water (WGK 1)

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

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
H319 - Causes serious eye irritation

Issue Date	24-Sep-2015
Revision Date	24-Sep-2015
Revision Note	Not applicable.

This safety data sheet complies with the requirements of: Regulation (EC) No. 1907/2006, COMMISSION REGULATION (EU) No. 453/2010 of 20 May 2010.

Disclaimer
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End of Safety Data Sheet