

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

1.1. Product identifier

Product form : Mixture
Product name : BIOREM CD20
Product code : LIQ0316
Type of product : Detergent

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

1.2.1. Relevant identified uses

Main use category : Professional use

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

REALCO S.A. Avenue Albert Einstein, 15 B-1348 Louvain-la-Neuve - Belgium T +32 (0)10 45 30 00 - F +32 (0)10 45 63 63 info@realco.be - www.realco.be	REALZYME LLC 223 S Pioneer Blvd Springboro OH 45066 937-350-5660 info@realzyme.com - www.realzyme.com
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1.4. Emergency telephone number

Emergency number : Int+32-70-245.245

Country	Organisation/Company	Address	Emergency number
BELGIUM	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Central de la Base - Reine Astrid	Rue Bruyn B -1120 Brussels	+32 70 245 245

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Eye Dam. 1 H318
Resp. Sens. 1 H334

Full text of H-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

GHS08

Signal word (CLP) : Danger

Hazardous ingredients : Protease (Subtilisin), laccase

Hazard statements (CLP) : H318 - Causes serious eye damage
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements (CLP) : P261 - Avoid breathing fume, mist, vapours, spray
P280 - Wear eye protection, face shield
P284 - Wear respiratory protection
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER, a doctor

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

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according to Regulation (EC) No. 453/2010

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Directive 67/548/EEC
Protease (Subtilisin)	(CAS No) 9014-01-1 (EC no) 232-752-2 (REACH-no) 01-2119480434-38	1 - 5	Xn; R22 R42 Xi; R41 Xi; R37/38 N; R50
laccase	(CAS No) 80498-15-3 (EC no) 420-150-4 (EC index no) 647-017-00-5 (REACH-no) 01-0000016680-72	1 - 5	R42
Alpha-amylase	(CAS No) 9000-90-2 (EC no) 232-565-6 (REACH-no) 01-2119938627-26	0.1 - 1	R42

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Protease (Subtilisin)	(CAS No) 9014-01-1 (EC no) 232-752-2 (REACH-no) 01-2119480434-38	1 - 5	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Resp. Sens. 1, H334 STOT SE 3, H335 Aquatic Acute 1, H400
laccase	(CAS No) 80498-15-3 (EC no) 420-150-4 (EC index no) 647-017-00-5 (REACH-no) 01-0000016680-72	1 - 5	Resp. Sens. 1, H334
Alpha-amylase	(CAS No) 9000-90-2 (EC no) 232-565-6 (REACH-no) 01-2119938627-26	0.1 - 1	Resp. Sens. 1, H334

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If on skin, take off contaminated clothing. Wash clothing before re-using. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove victim to fresh air. Allow the victim to rest.
First-aid measures after skin contact	: Wash skin with mild soap and water.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing.
First-aid measures after ingestion	: Rinse mouth.

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

Symptoms/injuries after inhalation	: Cough. May cause sensitization by inhalation.
Symptoms/injuries after skin contact	: Redness. Repeated or prolonged skin contact may cause irritation.
Symptoms/injuries after eye contact	: Redness, pain.
Symptoms/injuries after ingestion	: Abdominal pain, nausea.

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 extinguishing agents can be used.
Unsuitable extinguishing media	: None.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Not combustible.
Explosion hazard	: Product is not explosive.

5.3. Advice for firefighters

Precautionary measures fire	: Wear proper protective equipment.
Firefighting instructions	: Exercise caution when fighting any chemical fire.

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Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation. Sweep or shovel spills.

6.1.1. For non-emergency personnel

Protective equipment : Personal protection. See Heading 8.2.

Emergency procedures : Evacuate area.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Personal protection. See Heading 8.2.

Emergency procedures : Mark out the contaminated area with signs and prevent access to unauthorized personnel. Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : Dike for recovery or absorb with appropriate material.

Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Dilute residue with water. Rinse with plenty of water.

Other information : Use suitable disposal containers.

6.4. Reference to other sections

See Heading 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Install a retention tank.

Storage conditions : Keep container closed when not in use.

Incompatible products : None, to our knowledge.

Incompatible materials : None, to our knowledge.

Storage temperature : 4 - 25 °C

Heat and ignition sources : Store away from direct sunlight or other heat sources.

Packaging materials : PEHD.

7.3. Specific end use(s)

Cleaning product.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Protease (Subtilisin) (9014-01-1)

Belgium	Limit value (mg/m³)	0,00006 mg/m³
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8.2. Exposure controls

Appropriate engineering controls : Ensure adequate air ventilation.

Personal protective equipment : Gloves. Safety glasses. Dust/aerosol mask with filter type P3.

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Hand protection	: In case of repeated or prolonged contact wear gloves. (EN 134)
Eye protection	: Chemical goggles or safety glasses. Eye protection (standard EN 166)
Skin and body protection	: Use chemically protective clothing and boots (type PVC).
Respiratory protection	: Wear appropriate mask. Recommended Filter: type P3 (acc. to EN 143). The entrepreneur has to ensure that maintenance cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.



Thermal hazard protection	: Not applicable.
Environmental exposure controls	: Prevent entry to sewers and public waters. Avoid release to the environment.
Other information	: Provide local exhaust or general room ventilation to minimize exposure to dust. The equipment must be cleaned thoroughly after each use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: brown.
Odour	: characteristic.
Odour threshold	: Not established.
pH	: 8,5 - 9,5
Relative evaporation rate (butylacetate=1)	: Not tested
Melting point	: Not tested
Freezing point	: Not tested
Boiling point	: Not tested
Flash point	: Not tested
Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not applicable
Flammability (solid, gas)	: Not applicable
Vapour pressure	: Not tested
Relative vapour density at 20 °C	: Not tested
Relative density	: 1,05 - 1,15
Solubility	: Material highly soluble in water.
Log Pow	: Not tested
Viscosity, kinematic	: Not tested
Viscosity, dynamic	: Not tested
Explosive properties	: Product is not explosive.
Oxidising properties	: Not applicable.
Explosive limits	: No data available

9.2. Other information

Additional information	: None
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SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of storage, handling and use.

10.2. Chemical stability

Stable under normal conditions of storage, handling and use.

10.3. Possibility of hazardous reactions

Stable under normal conditions of storage, handling and use.

10.4. Conditions to avoid

None, to our knowledge.

10.5. Incompatible materials

None, to our knowledge.

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10.6. Hazardous decomposition products

In the event of fire, may decompose : Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Protease (Subtilisin) (9014-01-1)	
LD50 oral	1800 mg/kg bodyweight
laccase (80498-15-3)	
LD50 oral	> 2000 mg/kg
Alpha-amylase (9000-90-2)	
LD50 oral	> 2000 mg/kg (OECD TG 401,420)

Skin corrosion/irritation : Not classified

pH: 8,5 - 9,5

Serious eye damage/irritation : Causes serious eye damage.

pH: 8,5 - 9,5

Respiratory or skin sensitisation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Protease (Subtilisin) (9014-01-1)	
EC50, daphnia	586 µg /l (48 Hours)
ErC50, algae	830 µg /l (72 Hours)
LC50, fish	8,2 mg/l (96 Hours)
laccase (80498-15-3)	
EC50, daphnia	31,7 - 457 (48 Hours)
ErC50, algae	> 5,2 mg/l (72 Hours)
LC50, fish	58,3 - 326,7 mg/l (96 Hours)
Alpha-amylase (9000-90-2)	
EC50, daphnia	31,7 - 457 mg/l (48 Hours, (OCDE 202))
ErC50, algae	≥ 5,2 mg/l (72 Hours, (OCDE 201))
LC50, fish	58,3 - 326,7 mg/l (96 Hours, (OCDE 203))

12.2. Persistence and degradability

BIOREM 20	
Biodegradation	> 99 % (OECD 302B method)
Protease (Subtilisin) (9014-01-1)	
Persistence and degradability	Readily biodegradable.
laccase (80498-15-3)	
Persistence and degradability	Readily biodegradable.
Alpha-amylase (9000-90-2)	
Persistence and degradability	Readily biodegradable.

12.3. Bioaccumulative potential

BIOREM 20	
Log Pow	Not tested
Protease (Subtilisin) (9014-01-1)	
Log Pow	< 0
Bioaccumulative potential	Not bioaccumulable.
laccase (80498-15-3)	
Log Pow	< 0

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laccase (80498-15-3)	
Bioaccumulative potential	Not bioaccumulable.
Alpha-amylase (9000-90-2)	
Log Pow	< 0
Bioaccumulative potential	Not bioaccumulable.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component	
Protease (Subtilisin) (9014-01-1)	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
Alpha-amylase (9000-90-2)	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	: Remove to an authorized waste treatment plant.
Sewage disposal recommendations	: May be discharged to wastewater treatment installation.
Waste disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point. WHEN TOTALLY EMPTY, containers are recyclable like any other packing.
Ecology - waste materials	: Avoid release to the environment.
European List of Waste (LoW) code	: 20 01 30 - detergents other than those mentioned in 20 01 29
R code/ D code	: D8 - Biological treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D 1 to D 12

SECTION 14: Transport information

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

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable
Proper Shipping Name (ADN)	: Not applicable
Proper Shipping Name (RID)	: Not applicable

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: Not applicable
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IMDG

Transport hazard class(es) (IMDG)	: Not applicable
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IATA

Transport hazard class(es) (IATA)	: Not applicable
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ADN

Transport hazard class(es) (ADN)	: Not applicable
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RID

Transport hazard class(es) (RID)	: Not applicable
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14.4. Packing group

Packing group (ADR)	: Not applicable
Packing group (IMDG)	: Not applicable

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Packing group (IATA)	: Not applicable
Packing group (ADN)	: Not applicable
Packing group (RID)	: Not applicable

14.5. Environmental hazards

Dangerous for the environment	: No
Marine pollutant	: No
Other information	: No supplementary information available

14.6. Special precautions for user

14.6.1. Overland transport

14.6.2. Transport by sea

14.6.3. Air transport

14.6.4. Inland waterway transport

Not subject to ADN	: No
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14.6.5. Rail transport

Carriage prohibited (RID)	: No
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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

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
BIOREM 20 is not on the REACH Candidate List
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

Detergent Regulation : Labelling of contents:

Component	%
enzymes	

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

SECTION 16: Other information

Indication of changes:

	Date of issue	Modified	
	Revision date	Modified	
	Supersedes	Added	
2.1	Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]	Removed	
2.1	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Added	
2.2	Labelling according to Directive 67/548/EEC or 1999/45/EC	Removed	
2.2	Labelling according to Regulation (EC) No. 1272/2008 [CLP]	Added	
8.2	Personal protective equipment	Modified	
13.1	H code	Removed	

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Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Resp. Sens. 1	Sensitisation — Respiratory, category 1
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
R22	Harmful if swallowed
R37/38	Irritating to respiratory system and skin
R41	Risk of serious damage to eyes
R42	May cause sensitization by inhalation
R50	Very toxic to aquatic organisms
N	Dangerous for the environment
Xi	Irritant
Xn	Harmful

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product