

SECTION 1: Identification**1.1. Identification**

Product form : Mixture
Product name : AZYMIX
Product code : LIQ5381

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

REALZYME
S Pioneer BLVD, 223
Springboro, - OH 45066
United States of America
T +1 937 350 56 60 - F +1 937 350 56 60
info@realzyme.com - www.realzyme.com

1.4. Emergency telephone number

Emergency number : +1- 800 - 222 - 1222 (United States only) 011-32-70-245-245 (Canada and all other areas)

SECTION 2: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS-US classification**

Respiratory sensitisation, Category 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Full text of H-statements: see section 16

2.2. GHS Label elements, including precautionary statements**GHS US labelling**

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger
Hazard statements (GHS US) : H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary statements (GHS US) : P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P284 - [In case of inadequate ventilation] wear respiratory protection.
P304+P341 - If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a poison center or doctor.
P501 - Dispose of contents/container to hazardous or special waste collection point

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
1-propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-FC18-18 acyl derivs, hydroxides, inner salts	-	1 – 3	Eye Dam. 1, H318 Aquatic Chronic 3, H412
subtilisin	CAS-No.: 9014-01-1	0.106073 – 0.1591095	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 Aquatic Chronic 2, H411
Lipase	CAS-No.: 9001-62-1	0.0723225 – 0.144645	Resp. Sens. 1, H334
Beta-glucanase	CAS-No.: 62213-14-3	0.1 – 1	Resp. Sens. 1, H334

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Take off immediately all contaminated clothing. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air. Allow affected person to breathe fresh air.

First-aid measures after skin contact : Wash with plenty of water/....

First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.

First-aid measures after ingestion : Rinse mouth.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : Cough.

Symptoms/effects after skin contact : Redness. Repeated or prolonged skin contact may cause irritation.

Symptoms/effects after eye contact : Redness, pain.

Symptoms/effects after ingestion : Abdominal pain, nausea.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : All extinguishing media allowed.

Unsuitable extinguishing media : Do not use a heavy water stream.

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

5.2. Specific hazards arising from the chemical

Fire hazard	: Not flammable.
Explosion hazard	: Product is not explosive.
Reactivity in case of fire	: None.
Hazardous decomposition products in case of fire	: Thermal decomposition generates : Carbon oxides (CO, CO2).

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	: Wear proper protective equipment.
Firefighting instructions	: Exercise caution when fighting any chemical fire.
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	: Dike for recovery or absorb with appropriate material.
------------------	--

6.1.1. For non-emergency personnel

Protective equipment	: Personal protection. See Section 8.
Emergency procedures	: Avoid all contact with skin, eyes, or clothing. Evacuate area.

6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection. See Section 8.
Emergency procedures	: Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Dike for recovery or absorb with appropriate material.
Methods for cleaning up	: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Rinse with plenty of water.
Other information	: Spill area may be slippery. Never return spills in original containers for possible later re-use.

6.4. Reference to other sections

See Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Avoid contact with skin and eyes. 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

Storage conditions	: Store in original container. 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.
Information on mixed storage	: Keep away from food, drink and animal feeding stuffs.
Storage area	: Store in dry, cool, well-ventilated area.
Packaging materials	: PEHD.

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

AZYMIX

No additional information available

1-propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-FC18-18 acyl derivs, hydroxides, inner salts

No additional information available

subtilisin (9014-01-1)

USA - NIOSH - Occupational Exposure Limits

NIOSH REL STEL	0.00006 mg/m ³ 60 minutes average value
----------------	--

Lipase (9001-62-1)

No additional information available

Beta-glucanase (62213-14-3)

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure adequate ventilation.

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves.

Hand protection:

In case of repeated or prolonged contact wear gloves. ISO 374-1

Eye protection:

None necessary. Avoid contact with eyes

Skin and body protection:

No special clothing/skin protection equipment is recommended under normal conditions of use

Respiratory protection:

No special respiratory protection equipment is recommended under normal conditions of use with adequate ventilation

Personal protective equipment symbol(s):



Thermal hazard protection:

No specific measures are necessary.

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Other information:

Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Blue
Odour	: Mixture contains one or more component(s) which have the following odour:
Odour threshold	: Not determined
pH	: 7.5 – 8.5
Melting point	: The product has not been tested
Freezing point	: The product has not been tested
Boiling point	: The product has not been tested
Flash point	: The product has not been tested
Relative evaporation rate (butylacetate=1)	: The product has not been tested
Flammability (solid, gas)	: Not applicable
Vapour pressure	: The product has not been tested
Relative vapour density at 20°C	: The product has not been tested
Relative density	: 1.002 – 1.102
Solubility	: Material highly soluble in water.
Partition coefficient n-octanol/water (Log Pow)	: The product has not been tested
Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not applicable
Viscosity, kinematic	: The product has not been tested
Viscosity, dynamic	: The product has not been tested
Explosive limits	: No data available
Explosive properties	: Product is not explosive.
Oxidising properties	: None.

9.2. Other information

Additional information	: None
------------------------	--------

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable in use and storage conditions as recommended in item 7.

10.2. Chemical stability

Stable in use and storage conditions as recommended in item 7.

10.3. Possibility of hazardous reactions

None under normal conditions.

10.4. Conditions to avoid

High temperature.

10.5. Incompatible materials

None to our knowledge.

10.6. Hazardous decomposition products

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

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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

subtilisin (9014-01-1)

LD50 oral	1800 mg/kg bodyweight
ATE US (oral)	500 mg/kg bodyweight

Lipase (9001-62-1)

LD50 oral	> 2000 mg/kg bodyweight (OECD 401,420)
-----------	--

Beta-glucanase (62213-14-3)

LD50 oral	> 2000 mg/kg (OECD TG 401,420)
-----------	--------------------------------

Skin corrosion/irritation : Not classified
pH: 7.5 – 8.5

Serious eye damage/irritation : Not classified
pH: 7.5 – 8.5

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

STOT-single exposure : Not classified

subtilisin (9014-01-1)

STOT-single exposure	May cause respiratory irritation.
----------------------	-----------------------------------

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Viscosity, kinematic : The product has not been tested

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : Cough.

Symptoms/effects after skin contact : Redness. Repeated or prolonged skin contact may cause irritation.

Symptoms/effects after eye contact : Redness, pain.

Symptoms/effects after ingestion : Abdominal pain, nausea.

SECTION 12: Ecological information

12.1. Toxicity

subtilisin (9014-01-1)

LC50 - Fish [1]	8.2 mg/l (OECD 203 method)
-----------------	----------------------------

EC50 - Crustacea [1]	586 µg/l (Daphnie sp.)
----------------------	------------------------

ErC50 algae	0.83 mg/l (OECD 201 method)
-------------	-----------------------------

Lipase (9001-62-1)

LC50 - Fish [1]	> 68.3 mg/l (OECD 203 method)
-----------------	-------------------------------

EC50 - Crustacea [1]	> 37.4 mg/l (OECD 202 method)
----------------------	-------------------------------

ErC50 algae	> 18 mg/l (OECD 201 method)
-------------	-----------------------------

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Lipase (9001-62-1)	
EC50, daphnia	> 37,4 mg/l (48 Hours, (OCDE 202))
ErC50, algae	> 18 mg/l (72 Hours, (OCDE 201))
LC50, fish	> 68,3 mg/l (96 Hours, (OCDE 203))

Beta-glucanase (62213-14-3)	
EC50, daphnia	> 100 mg/l (48 Hours)
ErC50, algae	> 100 mg/l (72 Hours)
LC50, fish	> 100 mg/l (96 Hours)

12.2. Persistence and degradability

subtilisin (9014-01-1)	
Persistence and degradability	(OECD 301B method). Biodegradable.
Lipase (9001-62-1)	
Persistence and degradability	Biodegradable.
Beta-glucanase (62213-14-3)	
Persistence and degradability	Biodegradable.

12.3. Bioaccumulative potential

AZYMIX	
Partition coefficient n-octanol/water (Log Pow)	The product has not been tested
subtilisin (9014-01-1)	
Partition coefficient n-octanol/water (Log Pow)	< 0
Bioaccumulative potential	not bioaccumulable.
Lipase (9001-62-1)	
Partition coefficient n-octanol/water (Log Pow)	< 0
Bioaccumulative potential	not bioaccumulable.
Beta-glucanase (62213-14-3)	
Partition coefficient n-octanol/water (Log Pow)	< 0
Bioaccumulative potential	not bioaccumulable.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods	
Regional legislation (waste)	: Disposal must be done according to official regulations.

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Waste treatment methods	: Remove to an authorized waste treatment plant.
Sewage disposal recommendations	: May be discharged to wastewater treatment installation.
Product/Packaging 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.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No	: Not applicable
UN-No. (TDG)	: Not applicable
UN-No. (IMDG)	: Not applicable
UN-No. (IATA)	: Not applicable

14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Not applicable
Proper Shipping Name (TDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT)	: Not applicable
----------------------------------	------------------

TDG

Transport hazard class(es) (TDG)	: Not applicable
----------------------------------	------------------

IMDG

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

IATA

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

14.4. Packing group

Packing group (DOT)	: Not applicable
Packing group (TDG)	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable

14.5. Environmental hazards

Other information	: No supplementary information available.
-------------------	---

14.6. Special precautions for user

DOT

Not applicable

TDG

Not applicable

IMDG

No data available

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

IATA

No data available

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. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
1-propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-FC18-18 acyl derivs, hydroxides, inner salts		Present	Active	
subtilisin	9014-01-1	Present	Active	XU
Lipase	9001-62-1	Present	Active	XU
Beta-glucanase	62213-14-3	Present	Active	XU

15.2. International regulations

CANADA

1-propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-FC18-18 acyl derivs, hydroxides, inner salts

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

No additional information available

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 4/15/2015

Full text of H-statements	
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.
H411	Toxic to aquatic life with long lasting effects.

AZYMIX

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of H-statements

H412	Harmful to aquatic life with long lasting effects.
------	--

NFPA health hazard

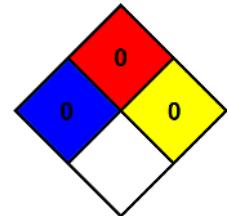
: 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



Safety Data Sheet (SDS), USA

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.