

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

**1.1. Product identifier**

Product form : Substance  
 Trade name : LYSOZYM  
 EC-No. : 232-954-0  
 CAS-No. : 9066-59-5  
 Type of product : For œnological use  
 Formula : C616H963N1930182S10 x HCl  
 Synonyms : Lysozyme hydrochloride; Muramidase  
 Product group : Trade product  
 Other means of identification : E1105

**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

Industrial/Professional use spec : For professional users only

Use of the substance/mixture : Enzyme with endo-glucosidase activity; hen egg white extract. Enzyme to delay or prevent malolactic fermentation by degrading lactic bacterial cell walls (Gram +).

Use of the substance/mixture : For œnological use

**1.2.2. Uses advised against**

No additional information available

**1.3. Details of the supplier of the safety data sheet**

**Supplier**

LAFFORT FRANCE

P.O. Box CS 61611

33072 BORDEAUX CEDEX - FRANCE

T +33 (0)5 56 86 53 04 - F +33 (0)5 56 86 30 50

[info@laffort.com](mailto:info@laffort.com) - [www.laffort.com](http://www.laffort.com)

**1.4. Emergency telephone number**

Country	Organisation/Company	Address	Emergency number	Comment
Australia	NSW Poisons Information Centre	The Children's Hospital at Westmead Locked Bag 4001 NSW 2145 Westmead	13 11 26 +56 2 2 247 3600	
Canada	Ontario Poison Centre (OPC)	The Hospital for Sick Children 555 University Avenue ON M5G 1X8 Toronto	1-800-268-9017 (416) 813-5900	
Canada	BC Drug and Poison Information Centre (DPIC)	655 West 12th Avenue BC V5Z 4R4 Vancouver	1-800-567-8911 (604) 682-5050	
China	National Poison Control Center	Chinese Center for Disease Control and Prevention Nanwei road, No.29 100050 Beijing	+86 10 831 32 046	

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Country	Organisation/Company	Address	Emergency number	Comment
Croatia	Centar za kontrolu otrovanja Institut za medicinska istraživanja i medicinu rada	Ksaverska Cesta 2 p.p. 291 10000 Zagreb	+385 1 234 8342	
Czech Republic	Toxikologické informační středisko Klinika pracovního lékařství VFN a 1. LF UK	Na Bojišti 1 120 00 Praha 2	+420 224 919 293 +420 224 915 402	
Georgia	National Toxicology Information Advisory Center	Tbilisi State Medical University Department of Toxicology - 7 Asatiani St. 380 077 Tbilisi	+995 99 533320	
Greece	Poisons Information Centre Children's Hospital P&A Kyriakou	11762 Athens	+30 2 10 779 3777	
Hungary	Országos Kémiai Biztonsági Intézet Egészségügyi Toxikológiai Tájékoztató Szolgálat	Nagyvárad tér 2. 1437 Budapest, Pf. 839 1097 Budapest	+36 80 20 11 99	
Israel	Israel Poison Information Center Rambam Health Care Campus	6 Ha'Aliya Street 31096 Haifa	+972 4 854 1900	
Japan	Japan Poison Information Center	Tsukuba Medical Center 1-1-1 Amakubo 305-0005 Tsukuba City, Ibaraki	+81-29-856-3566 +81-72-727-2499	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital MSD Msida	+356 2545 6504	
New Zealand	National Poisons Centre	Dunedin School of Medicine, University of Otago PO Box 913 9054 Dunedin	0800 764 766 +56 2 2 247 3600	
Poland	National Poisons Information Centre The Nofer Institute of Occupational Medicine (Łódź)	ul. Teresy 8 P.O. BOX 199 90950 Łódź	+48 42 63 14 724	
Romania	Department of Clinical Toxicology Spitalul de Urgenta Floreasca	Calea Floreasca Bucuresti	+40 21 230 8000	
Russia	Информационно- консультативный центр по токсикология (RTIAC) Министерство здравоохранения Российской Федерации	3 Сухаревская Площадь Блок 7 129090 г. Москва	+7 495 628 1687 (только на русском)	
Slovenia	Center za klinično toksikologijo in farmakologijo Interna klinika, UKCL	Zaloška cesta 7 1525 Ljubljana	+386 41 650 500	
South Africa	Tygerberg Poison Information Centre	Division of Clinical Pharmacology Faculty of Medicine and Health Sciences Stellenbosch University - PO Box 241 8 000 Cape Town	0861 555 777 +56 2 2 247 3600	

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Country	Organisation/Company	Address	Emergency number	Comment
Turkey	Ulusal Zehir Merkezi (UZEM) Refik Saydam Hıfzısıhha Merkezi Başkanlığı	Cemal Gürsel Cd. No: 18 Sıhhiye Çankaya 6590 Ankara	114	Information is provided to public and medical personnel on poisoning incidents via 114.
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	0870 243 2241	
United States of America	American Association of Poison Control Centers	515 King St., Suite 510 VA 22314 Alexandria	1-800-222-1222 +56 2 2 247 3600	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Respiratory sensitisation, Category 1 H334

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

Adverse physicochemical, human health and environmental effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

### 2.2. Label elements

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

Hazard pictograms (CLP)



GHS08

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements (CLP)

: P261 - Avoid breathing dust, fume, gas, mist, vapours, spray  
P285 - In case of inadequate ventilation wear respiratory protection  
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or  
doctor/physician  
P304+P341 - IF INHALED: if breathing is difficult, remove victim to fresh air and keep at rest  
in a position comfortable for breathing

### 2.3. Other hazards

Other hazards not contributing to the  
classification

: May cause sensitization by inhalation and skin contact. mild eye irritation. mild skin  
irritation.

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### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Substance type : Mono-constituent  
Name : LYSOZYM  
CAS-No. : 9066-59-5  
EC-No. : 232-954-0

Name	Product identifier	%
Lysozyme (E1105)	(CAS-No.) 9066-59-5 (EC-No.) 232-954-0 (REACH-no) 01-2120086351-59	100

Full text of H-statements: see section 16

#### 3.2. Mixtures

Not applicable

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures general : If symptoms persist call a doctor. Sensitisation : contact can cause allergic reactions in humans. Call a poison center or a doctor if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician. If experiencing respiratory symptoms: Call a poison center or a doctor.

First-aid measures after skin contact : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap. If symptoms persist, call a physician. Wash skin with plenty of water.

First-aid measures after eye contact : In case of eye contact, immediately rinse with clean water for 10-15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Rinse eyes with water as a precaution.

First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. Immediately give plenty of water. Never give anything by mouth to an unconscious person. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects : More detailed information: See section 11.

Symptoms/effects after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/effects after skin contact : Slight irritation.

Symptoms/effects after eye contact : mild eye irritation.

Symptoms/effects after ingestion : May cause irritation to the digestive tract.

#### 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 : carbon dioxide (CO<sub>2</sub>), powder, alcohol-resistant foam, water spray. Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Do not use water jet.

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### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 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 : Do not contaminate ground and surface water. Dispose in a safe manner in accordance with local/national regulations.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Protective equipment : Wear personal protective equipment.

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.

Measures in case of dust release : Avoid dust formation.

#### 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. Do not flush into surface water or sewer system.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Contain leaking substance, pump over in suitable containers. Clean contaminated surfaces with an excess of water.

Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Avoid dust formation. Store tightly closed in a dry and cool place. Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment. Avoid breathing dust/fume/gas/mist/vapours/spray.

Hygiene measures : 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

Technical measures : Keep only in the original container.

Storage conditions : Keep in a well-ventilated room. Store in a dry, cool place. Keep out of direct sunlight. Keep container tightly closed to prevent moisture pick-up. Store in a well-ventilated place. Keep cool.

Heat and ignition sources : Keep away from ignition sources (including static discharges).

### 7.3. Specific end use(s)

For oenological use.

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Exposure controls

##### Appropriate engineering controls:

Ensure good ventilation of the work station.

##### Personal protective equipment:

Refer to protective measures listed in Sections 7 and 8.

##### Materials for protective clothing:

Long sleeved protective clothing

##### Hand protection:

In case of repeated or prolonged contact wear gloves. Nitrile rubber gloves. Butyl rubber gloves. Latex gloves. Wash hands immediately after handling the product

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0.4		EN 374

##### Eye protection:

Safety glasses

Type	Use	Characteristics	Standard
Safety glasses	Dust	With side shields	EN 166

##### Skin and body protection:

Wear suitable protective clothing

##### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Dust production: dust mask with filter type P1. EN 149

##### Environmental exposure controls:

Do not allow into drains or water courses. Avoid release to the environment. May be discharged to wastewater treatment installation.

##### Other information:

Do not eat, drink or smoke during work. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Powder.

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Colour	: White to off-white.
Odour	: Product characteristics.
Odour threshold	: No data available
pH	: No data available
pH solution	: 3 - 3,6 2%
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	: 208 °C
Flammability (solid, gas)	: Non flammable
Vapour pressure	: 147 Pa 20 °C
Relative vapour density at 20 °C	: No data available
Relative density	: ≈ 0,988 20 °C
Solubility	: Soluble in water. Insoluble in oils/fats. Water: 285 g/l 20 °C - pH 4
Log Pow	: No data available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Not applicable

### 9.2. Other information

No additional information available

## 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

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

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### 10.4. Conditions to avoid

Keep away from heat and direct sunlight. Heat. flames or sparks. Moisture.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

See Heading 5.

## 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

Lysozyme (E1105) (9066-59-5)	
LD50 oral rat	> 5050 mg/kg
LD50 dermal rabbit	> 5050 mg/kg
LC50 inhalation rat (mg/l)	> 2,51 mg/l/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

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

Lysozyme (E1105) (9066-59-5)	
NOAEL (animal/male, F0/P)	> 200 mg/kg

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Lysozyme (E1105) (9066-59-5)	
NOAEL (oral, rat, 90 days)	> 500 mg/kg bodyweight/day

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Sensitisation : contact can cause allergic reactions in humans.



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### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

Lysozyme (E1105) (9066-59-5)	
LC50 fish 1	> 1 g/l <i>Cyprinus carpio</i>
LC50 fish 2	> 1 g/l <i>Danio rerio</i>
EC50 <i>Daphnia</i> 1	> 1 mg/l <i>Daphnia magna</i>
ErC50 (algae)	> 97 mg/l 72h - <i>Desmodesmus subspicatus</i>

#### 12.2. Persistence and degradability

Lysozyme (E1105) (9066-59-5)	
Persistence and degradability	Readily biodegradable.

#### 12.3. Bioaccumulative potential

Lysozyme (E1105) (9066-59-5)	
Log Pow	< 0,01 25°C
Bioaccumulative potential	There is no bioaccumulation.

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

No additional information available

#### 12.6. Other adverse effects

Other adverse effects : Do not allow to enter drains or water courses. Not dangerous for the ozone layer.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: No known adverse effects on the functioning of water treatment plants under normal use conditions as recommended.
Product/Packaging disposal recommendations	: Empty remaining contents. Dispose of contents/container in accordance with licensed collector's sorting instructions.

### SECTION 14: Transport information

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

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### 14.1. UN number

UN-No. (ADR)	: Not regulated
UN-No. (IMDG)	: Not regulated
UN-No. (IATA)	: Not regulated
UN-No. (ADN)	: Not regulated
UN-No. (RID)	: Not regulated

### 14.2. UN proper shipping name

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

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR)	: Not regulated
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#### IMDG

Transport hazard class(es) (IMDG)	: Not regulated
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#### IATA

Transport hazard class(es) (IATA)	: Not regulated
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#### ADN

Transport hazard class(es) (ADN)	: Not regulated
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#### RID

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

Packing group (ADR)	: Not regulated
Packing group (IMDG)	: Not regulated
Packing group (IATA)	: Not regulated
Packing group (ADN)	: Not regulated
Packing group (RID)	: Not regulated

### 14.5. Environmental hazards

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

### 14.6. Special precautions for user

- Overland transport  
Not regulated
- Transport by sea  
Not regulated

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- Air transport

Not regulated

- Inland waterway transport

Not regulated

- Rail transport

Not regulated

### 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

No REACH Annex XVII restrictions

LYSOZYM is not on the REACH Candidate List

LYSOZYM is not on the REACH Annex XIV List

#### 15.1.2. National regulations

##### Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

##### Netherlands

SZW-lijst van kankerverwekkende stoffen : LYSOZYM is listed

SZW-lijst van mutagene stoffen : LYSOZYM is listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

##### Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product

### 15.2. Chemical safety assessment

A chemical safety assessment has been carried out

No chemical safety assessment has been carried out

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### SECTION 16: Other information

Full text of H- and EUH-statements:	
Resp. Sens. 1	Respiratory sensitisation, Category 1
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

*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*