



SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	Enzymax Liquid
Other means of identification	IMS-1222
Recommended use	Detergent
Recommended restrictions	None known.
Manufacturer	Hu-Friedy Mfg. Co., LLC 3232 N. Rockwell St. Chicago, IL 60618-5982 US Phone: 773.975.6100 Fax: 773.868.3599 Emergency Phone: 1-800-535-5053 Outside US: 001-352-323-3500

2. Hazards Identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Sensitization, respiratory	Category 1
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statement

Prevention

Avoid breathing mist or vapor.
In case of inadequate ventilation wear respiratory protection.
Wash hands thoroughly after handling.
Wear eye/face protection.
Wear protective gloves.

Response

If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor.
If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention.
If in eyes: 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.
Take off contaminated clothing and wash before reuse.

Storage

Store away from incompatible materials.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)	None known.
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Supplemental information	11% of the mixture consists of component(s) of unknown acute toxicity.
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3. Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
Octanoic Acid, Potassium Salt		764-71-6	7 - 13
Glycerol		56-81-5	5 - 10
Subtilisin carlsburg		9014-01-1	0.5 - 1.5
Amylase, .alpha.-		9000-90-2	0.1 - 1

Composition comments	The exact % concentration of composition has been withheld as a trade secret in accordance with paragraph (i) of the OSHA HCS 1910.1200.
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4. First Aid Measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
Skin contact	In case of skin contact, immediately flush skin with plenty of water. Call a physician if irritation develops and persists. Remove and wash contaminated clothing before reuse.
Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Obtain medical attention if irritation persists.
Ingestion	If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.
Most important symptoms/effects, acute and delayed	May cause allergic respiratory reaction. Symptoms may include stinging, tearing, redness, swelling of the eyes, and blurred vision. Skin irritation.
Indication of immediate medical attention and special treatment needed	Treat patient symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Suitable extinguishing media	Treat for surrounding material.
Unsuitable extinguishing media	Not available.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.
Hazardous combustion products	May include and are not limited to: Oxides of carbon.
Explosion data	
Sensitivity to mechanical impact	Not available.
Sensitivity to static discharge	Not available.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Keep out of low areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors or mists. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Large Spills: Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
Environmental precautions	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and Storage

Precautions for safe handling	Avoid contact with eyes and skin. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not swallow. Handle and open container with care. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling.
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8. Exposure Controls/Personal Protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Glycerol (CAS 56-81-5)	PEL	5 mg/m3 15 mg/m3	Respirable fraction. Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value
Subtilisin carlsburg (CAS 9014-01-1)	Ceiling	0.00006 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Subtilisin carlsburg (CAS 9014-01-1)	STEL	0.00006 mg/m3

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Chemicals listed in section 3 that are not listed here do not have established limit values for ACGIH or OSHA PEL.

Appropriate engineering controls

Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection.

Skin protection

Hand protection Wear protective gloves.

Other As required by employer code.

Respiratory protection Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.

Thermal hazards Not available.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and Chemical Properties

Appearance	Liquid
Physical state	Liquid.
Form	Liquid.
Color	Purple
Odor	Lemon / Spearmint
Odor threshold	Not available.
pH	8.7
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Pour point	Not available.
Specific gravity	Not available.
Partition coefficient (n-octanol/water)	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.1
Solubility(ies)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and Reactivity

Reactivity	This product may react with oxidizing agents.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon.

11. Toxicological Information

Routes of exposure Inhalation. Ingestion. Skin contact. Eye contact.

Information on likely routes of exposure

Ingestion	May be harmful if swallowed.
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause irritation to the respiratory system.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Symptoms may include stinging, tearing, redness, swelling of the eyes, and blurred vision. Symptoms may include stomach distress, nausea or vomiting. Symptoms may include redness, drying, defatting and cracking of the skin.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Amylase, .alpha.- (CAS 9000-90-2)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Rat	7500 mg/kg
Glycerol (CAS 56-81-5)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 10000 mg/kg 23000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 143 mg/m ³ , 4 Hours
<i>Oral</i>		
LD50	Mouse	23000 mg/kg
	Rat	> 12600 mg/kg 27200 mg/kg

Components	Species	Test Results
Octanoic Acid, Potassium Salt (CAS 764-71-6)		
Acute		
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Not available	
Subtilisin carlsburg (CAS 9014-01-1)		
Acute		
<i>Dermal</i>		
LD50	Not available	
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Rat	1800 mg/kg
Skin corrosion/irritation	Causes irritation.	
Exposure minutes	Not available.	
Erythema value	Not available.	
Oedema value	Not available.	
Serious eye damage/eye irritation	Causes irritation.	
Corneal opacity value	Not available.	
Iris lesion value	Not available.	
Conjunctival reddening value	Not available.	
Conjunctival oedema value	Not available.	
Recover days	Not available.	
Respiratory or skin sensitization		
Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	Not classified.	
Mutagenicity	Not classified.	
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Teratogenicity	Not classified.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not classified.	
Chronic effects	Prolonged inhalation may be harmful.	
Further information	Not available.	
Name of Toxicologically Synergistic Products	Not available.	

12. Ecological Information

Ecotoxicity	See below		
Components	Species		Test Results
Glycerol (CAS 56-81-5)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	51000 - 57000 mg/l, 96 hours
Persistence and degradability	No data is available on the degradability of this product.		
Bioaccumulative potential	No data available.		
Mobility in soil	No data available.		

Mobility in general	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

U.S. Department of Transportation (DOT)	Not regulated as dangerous goods.
Transportation of Dangerous Goods (TDG - Canada)	Not regulated as dangerous goods.

15. Regulatory Information

Canadian federal regulations	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
WHMIS status	Controlled
WHMIS classification	Class D - Division 2A, 2B
WHMIS labeling	



US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
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TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

US CAA Section 111 Volatile Organic Compounds: Listed substance

Glycerol (CAS 56-81-5)

Listed.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance	No
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SARA 311/312 Hazardous chemical	No
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SARA 313 (TRI reporting)	Not regulated.
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Other federal regulations

Safe Drinking Water Act (SDWA)	Not regulated.
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Food and Drug Administration (FDA)	Not regulated.
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US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Hazardous Substances (Director's): Listed substance

Subtilisin carlsburg (CAS 9014-01-1) Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

US - Minnesota Haz Subs: Listed substance

Glycerol (CAS 56-81-5) Listed.

US - New Jersey RTK - Substances: Listed substance

Glycerol (CAS 56-81-5) Listed.

US - Texas Effects Screening Levels: Listed substance

Glycerol (CAS 56-81-5) Listed.

Subtilisin carlsburg (CAS 9014-01-1) Listed.

US. Massachusetts RTK - Substance List

Glycerol (CAS 56-81-5) Listed.

US. Pennsylvania RTK - Hazardous Substances

Glycerol (CAS 56-81-5) Listed.

US. Rhode Island RTK

Not regulated.

Inventory status

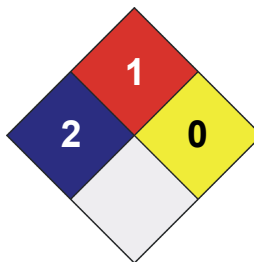
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 2
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X

**Disclaimer**

The information in the sheet was written based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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Further information For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Prepared by Dell Tech Laboratories, Ltd. Phone: (519) 858-5021

Other information This Safety Data Sheet was prepared to comply with the current OSHA Hazard Communication Standard (HCS) adoption of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
This SDS conforms to the ANSI Z400.1/Z129.1-2010 Standard.