




## Material Safety Data Sheet

Version: 1.0  
Revision Date: Mar 11, 2019

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION	
<b>1.1</b>	<b>Product identifier</b>
Product Code	enz_lac_005
Product Name	Lyophilized laccase
INDEX-No	647-017-00-5
CAS-No.	80498-15-3
<b>1.2</b>	<b>Relevant identified uses</b>
Identified uses	For research use only, not for human or veterinary use.
<b>1.3</b>	<b>Details of the supplier of the safety data sheet</b>
Company	Sociedad de Biotecnología Swisssaustral Chile Ltda.
Company Address	José Domingo Cañas 2280, Ñuñoa, Santiago, Chile.
Web site	www.swisssaustral.com
Telephone	+56 2 2 343 2578
Emergency Phone	+56 2 2 343 2578

SECTION 2. HAZARDS IDENTIFICATION						
<b>2.1</b>	<b>Classification of the substance or mixture</b>	GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) Respiratory sensitization (Category 1), H334 For the full text of the H-Statements mentioned in this Section, see Section 16.				
<b>2.2</b>	<b>Label elements</b>	<table border="0"> <tr> <td style="text-align: center;"><i>Pictogram</i></td> <td style="text-align: center;"><i>Signal Word</i></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">Danger</td> </tr> </table> <p><b>Hazard statement(s):</b> <b>H334</b> May cause allergy or asthma symptoms or breathing difficulties if inhaled.</p> <p><b>Precautionary statement(s):</b> <b>P261</b> Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. <b>P285</b> In case of inadequate ventilation wear respiratory protection. <b>P304 + P341</b> IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. <b>P342 + P311</b> If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician. <b>P501</b> Dispose of contents/ container to an approved waste disposal plant.</p>	<i>Pictogram</i>	<i>Signal Word</i>		Danger
<i>Pictogram</i>	<i>Signal Word</i>					
	Danger					

<b>2.3</b>	<b>Hazards not otherwise classified (HNOC) or not covered by GHS</b>	None
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<b>SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS</b>		
<b>3.1</b>	<b>Mixture</b>	Substances Synonyms : Lyophilized laccase CAS-No. : 80498-15-3 EC-No. : 420-150-4 Index-No. : 647-017-00-5  Hazardous components: Laccase Classification: Resp. Sens. 1; H334 Concentration: 15 - 25 %  For the full text of the H-Statements mentioned in this Section, see Section 16.

<b>SECTION 4. FIRST AID MEASURES</b>	
<b>4.1</b>	<b>Description of first aid measures</b>
General advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash off with soap and plenty of water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 min and consult a physician.
In cases of ingestion	Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.
<b>4.2</b>	<b>Most important symptoms and effects, both acute and delayed</b>
	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.
<b>4.3</b>	<b>Indication of any immediate medical attention and special treatment needed</b>
	No data available

<b>SECTION 5. FIREFIGHTING MEASURES</b>		
<b>5.1</b>	<b>Suitable extinguishing media</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>5.2</b>	<b>Special hazards arising from the substance or mixture</b>	None known.
<b>5.3</b>	<b>Advice for firefighters</b>	Wear self-contained breathing apparatus for fighting if

		necessary.
5.4	Further information	No data available.

SECTION 6. ACCIDENTAL RELEASE MEASURES		
6.1	Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. For personal protection see section 8.
6.2	Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
6.3	Methods and material for containment and cleaning up	Contain spillage, and then collect with a wet-brushing and place in container for disposal according to local regulations (see section 13).
6.4	Reference to other sections	For disposal see section 13.

SECTION 7. HANDLING AND STORAGE		
7.1	Precautions for safe handling	Provide appropriate exhaust ventilation at places where dust is formed. Avoid contact with skin and eye. Avoid inhalation. For precautions see section 2.2
7.2	Conditions for safe storage	Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature: -20 °C. Light sensitive.
7.3	Specific end use(s)	A part from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. EXPOSURE CONTROL/PERSONAL PROTECTION		
8.1	Control parameters	
		Contains no substances with occupational exposure limit values.
8.2	Exposure controls	
8.2.1	Appropriate engineering controls	
		Handle in agreement with general industrial hygiene practice. Wash hands before breaks and at the end of workday.
8.2.2	Personal protective equipment	
	Eye/face protection	Use equipment for eye protection tested and approved under appropriate government standard such as NIOSH (US) or EN 166(EU)
	Skin/Hand protection	Handle with compatible chemical-resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with the product. Dispose of contaminated gloves after use in accordance with applicable laws and food laboratory practices. Wash and dry hands.

Body Protection	The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standard such as NIOSH (US) or CEN (EU).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

<b>SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES</b>	
<b>9.1</b>	<b>Appearance</b>
Form	Lyophilized powder
Colour	Pale Green
<b>9.2</b>	<b>Safety data</b>
pH	8.0 – 8.5
Melting point/ Freezing point	No data available.
Boiling point	No data available.
Flash point	No data available.
Ignition temperature	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Lower explosion limit	No data available.
Upper explosion limit	No data available.
Vapour pressure	No data available.
Relative density	No data available.
Water solubility	Easily miscible with water
Partition coefficient: n-octanol/water	No data available.
Relative vapour density	No data available.
Odour	No data available.
Odour Threshold	No data available.
Evaporation rate	No data available.
<b>9.3</b>	<b>Other safety information</b>
	No data available.

SECTION 10. STABILITY AND REACTIVITY		
<b>10.1</b>	<b>Reactivity</b>	No data available.
<b>10.2</b>	<b>Chemical stability</b>	Stable under recommended storage conditions.
<b>10.3</b>	<b>Possibility of hazardous reactions</b>	No data available.
<b>10.4</b>	<b>Conditions to avoid</b>	Prolonged storage under higher temperature than room temperature and high humidity.
<b>10.5</b>	<b>Incompatible materials</b>	Strong oxidizing agents.
<b>10.6</b>	<b>Hazardous decomposition products</b>	Other decomposition products – no data available. In event of fire: see section 5.

SECTION 11. TOXICOLOGICAL INFORMATION		
<b>11.1</b>	<b>Information on toxicological effects</b>	
Acute toxicity	LD50 Oral - Rat - male and female - > 1,350 mg/kg (Laccase) Inhalation: No data available. Dermal: No data available.	
Skin corrosion/irritation	Skin - Rabbit Result: No skin irritation - 4 h (Laccase) (OECD Test Guideline 404)	
Serious eye damage/eye irritation	Eyes - Rabbit Result: No eye irritation (Laccase) (OECD Test Guideline 405)	
Respiratory or skin sensitisation	No data available	
Germ cell mutagenicity	Ames test <i>S. typhimurium</i> Result: negative (Laccase)	
Carcinogenicity	IARC: No components of this product present at levels greater than or equal to 0.1% are identified as probable, possible or confirmed human carcinogen by IARC.  NTP: No components of this product present at levels greater than or equal to 0.1% are identified as known or anticipated carcinogen by NTP.  OSHA: No components of this product present at levels greater than or equal to 0.1% are identified as carcinogen or potential carcinogen by OSHA.	
Reproductive toxicity	No data available.	
Specific target organ toxicity-single exposure	No data available.	

Specific target organ toxicity- repeated exposure	No data available.
Aspiration hazard	No data available.
Additional Information	RTECS: Not available. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

SECTION 12. ECOLOGICAL INFORMATION		
12.1	<b>Toxicity</b>	Toxicity to daphnia and other aquatic invertebrates EC50 - <i>Daphnia magna</i> (Water flea) - > 100 mg/l - 48 h Toxicity to algae EC50 - <i>Selenastrum capricornutum</i> (green algae) - > 100 mg/l - 72 h (Laccase)
12.2	<b>Persistence and degradability</b>	Biodegradability Result: 89 % - Readily biodegradable. (OECD Test Guideline 301B) (Laccase)
12.3	<b>Bioaccumulative potential</b>	No data available.
12.4	<b>Mobility in soil</b>	No data available.
12.5	<b>Results of PBT and vPvB assessment</b>	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.
12.6	<b>Other adverse effects</b>	No data available.

SECTION 13. DISPOSAL CONSIDERATIONS		
13.1	<b>Waste treatment methods</b>	
	Product	Dispose of it in agreement with all applicable local and national laws and regulations.
	Contaminated packaging	Wash with copious amounts of water and waste conforming to local regulations depending on the type of the material.

SECTION 14. TRANSPORT INFORMATION		
14.1	<b>DOT (US)</b>	Not dangerous goods
14.2	<b>IMDG</b>	Not dangerous goods
14.3	<b>IATA</b>	Not dangerous goods

SECTION 15. REGULATORY INFORMATION		
15.1	<b>INDEX No.</b>	This product is a mixture. See section 3.
15.2	<b>SARA 302 Components</b>	SARA 302: No chemicals in this material are subjected to the reporting requirements of SARA Title III, Section 302.
15.3	<b>SARA 313 Components</b>	SARA 313: This material does not contain any chemical components with known CAS number that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
15.4	<b>SARA 311/312</b>	No SARA hazards

Hazards			
15.5	<b>Massachusetts Right To Know Components</b>	No components are subject to the Massachusetts Right to Know Act.	
15.6	<b>Pennsylvania Right To Know Components</b>		CAS-No
		Laccase	80498-15-3
		Sodium chloride	7647-14-5
		Tris (hydroxymethyl) aminomethane	77-86-1
15.7	<b>New Jersey Right To Know Components</b>		CAS-No
		Laccase	80498-15-3
		Sodium chloride	7647-14-5
		Tris (hydroxymethyl) aminomethane	77-86-1
15.8	<b>California Prop.65 Components</b>	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.	
<b>SECTION 16. OTHER INFORMATION</b>			
16.1	<b>Full text of H-Statements referred to under sections 2 and 3</b>		
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. Resp. Sens. Respiratory sensitisation			
16.2	<b>HMIS Rating</b>		
Health hazard		2	
Chronic Health Hazard		*	
Flammability		0	
Physical Hazard		0	
16.3	<b>NFPA Rating</b>		
Health hazard		2	
Fire Hazard		0	
Reactivity Hazard		0	
16.4	<b>Further information</b>		
Copyright 2016 Swissaustral Chile Ltda. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Swissaustral Chile Ltda. and its affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.			