

<b>1- IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING</b>	
Product identifier:	Substance name: <i>Yeast Cell Wall</i> CAS Number: Not determined (extracted from a specially selected strain of the yeast <i>Saccharomyces cerevisiae</i> ).
Relevant identified uses of the substance or mixture and uses advised against:	<i>Yeast Cell Wall</i> extracted from a specially selected strain of <i>Saccharomyces cerevisiae</i> .
Details of the supplier of the safety data sheet:	BIORIGIN Rua 15 de Novembro, 865 CEP:18680-900, Lençóis Paulista, SP/Brazil
Emergency telephone number:	+55 (14) 3269 9200
Fax number:	+55 (14) 3269-9210

<b>2- HAZARDS IDENTIFICATION</b>	
Classification of the substance or mixture:	Product not classified as dangerous by the Classification System used.
Classification system adopted:	Commission Regulation (EU) 2016/918 of 19 May 2016.
<b>Label elements:</b>	
Hazard pictograms:	Not applicable.
Signal word:	Not applicable.
Hazard Statement:	Not applicable.
Recommendations of precaution:	Wash hands after handling the product. Do not drink, eat or smoke while handling the product. The use of suitable PPE while handling the product is recommended. Get product information before handling. Store product in a suitable place. In an emergency, proceed as indications of SDS.
Other hazards:	The product does not have any other hazards.

<b>3- COMPOSITION/INFORMATION ON INGREDIENTS</b>	
<b>SUBSTANCE</b>	
Product identifier:	Substance name: Yeast Cell Wall CAS Number: Not determined (extracted from a specially selected

	strain of the yeast <i>Saccharomyces cerevisiae</i> ).
Impurities and stabilizing additives contributing to the hazard:	There are no impurities or stabilizing additives that contribute to the hazard.

## 4- FIRST AID MEASURES

### Description of first aid measures

Inhalation:	Remove exposed person to fresh air.
Skin contact:	Wash exposed skin with enough water to remove the material.
Eye contact:	Rinse thoroughly with water for several minutes. In the case of use of contact lenses, remove them, if it is easy. In case of eye irritation: Consult a doctor. Take this SDS.
Ingestion:	Do not induce vomiting. Rinse the victim's mouth with water in abundance. Call a POISON CENTER or doctor if you feel unwell. Take this SDS.
Most important symptoms and effects, both acute and delayed:	May cause mild irritation to the eyes, by mechanical effects with tearing and redness. May cause mild respiratory irritation with coughing and sneezing, by mechanical effects.
Indication of any immediate medical attention and special treatment needed:	If necessary, provide symptomatic treatment.

## 5- FIREFIGHTING MEASURES

Extinguishing media:	Appropriate: Compatible with water mist, carbon dioxide (CO <sub>2</sub> ) and dry chemical powder. Not recommended: Water jets directly.
Special hazards arising from the substance or mixture:	The combustion of the chemical products or containers may form toxic and irritating gases such as carbon monoxide and carbon dioxide. High concentration of dust dispersed in air may result in danger of explosion.
Advice for firefighters:	Use self-contained breathing apparatus (SCBA) operated in positive pressure mode and complete protective clothing that provides protection against heat. Containers and tanks involved in the fire should be cooled with water mist.

## 6- ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and	<b>For non-emergency personnel:</b> Do not smoke. Avoid exposure to the product. If necessary, use personal protective equipment as described
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emergency procedures	in Section 8. <b>For emergency responders:</b> Use full PPE with safety goggles, safety gloves, suitable safety clothing and closed shoes. In case of leakage, where exposure is large, the use of respiratory protective mask with filter against dusts is recommended. Preemptively isolate from ignition sources.
Environmental precautions:	Avoid spillage reaches watercourses and sewerage systems.
Methods and material for containment and cleaning up:	Collect the product with a vacuum cleaner or other instrument that does not disperse the product (moisten with water before removal). Put material in suitable containers and remove them to a safe place. For disposal, proceed according to Section 13 of this SDS.
Reference to other sections:	See Section 8 for information on personal protection equipment. See Section 13 for information on disposal.

## 7- HANDLING AND STORAGE

Precautions for safe handling:	Handle in a well ventilated area or with general system of ventilation/local exhaust. Avoid dusts formation. If necessary, use personal protective equipment as indicated in Section 8. Wash hands thoroughly after handling and before eating, drinking, smoking or using the toilet.
Conditions for safe storage, including any incompatibilities:	Store in a dry and well ventilated place away from sunlight. Store under cool, dry and pest free conditions. Storage away from chemicals and strong odors is recommended. Keep container closed. Keep stored at room temperature not exceeding 35°C. Keep away from high temperatures. Keep away from chemicals and strong odors and never in direct contact with the floor or the wall. Avoid excessive dust, sparks, open flames, welding operations and the accumulation of electrostatic charges on the dry product area if there is great product dust concentration due to explosion hazard. Recommended packaging materials: Paper bag multi-leaf with polyethylene liner or laminated polypropylene.
Specific end use(s):	Yeast Cell Wall extracted from a specially selected strain of <i>Saccharomyces cerevisiae</i> . It is intended to be used in food products.

## 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Control parameters:</b>	
Occupational exposure limit:	Not established.
Biological limit:	Not established.
Recommended monitoring	There are not available sufficient data to calculate this product's DNEL

procedures:	or PNEC.
<b>Exposure controls:</b>	
Appropriate engineering controls:	Promote direct mechanical ventilation and exhaust system to the outside environment. These measures help reduce exposure to product.
<b>Individual protection measures, such as personal protective equipment:</b>	
Eye/face protection:	Safety goggles.
Skin protection:	Safety gloves, suitable safety clothing and closed shoes.
Respiratory protection:	In case of leakage, where exposure is large, the use of respiratory protective mask with filter against dusts is recommended.
Thermal hazards:	It does not presents thermal hazards.
Environmental exposure control:	See Section 6 for information on environmental exposure.

<b>9- PHYSICAL AND CHEMICAL PROPERTIES</b>	
<b>Information on basic physical and chemical properties</b>	
Appearance:	Powder.
Odour:	Not available.
Odour threshold:	Not available.
pH:	4.6 – 6.5
Melting point/freezing point:	Not available.
Initial boiling and boiling range:	Not available.
Flash point:	Not available.
Evaporation rate:	Not available.
Flammability (solid, gas):	Not flammable.
Upper/ lower flammability or explosive limits:	Not available.
Vapour pressure:	Not available.
Vapour density:	Not available.
Relative density:	Not available.
Solubility(ies):	Insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature:	> 500 <sup>o</sup> C (932 °F).

Decomposition temperature:	Not available.
Viscosity:	Not available.
Explosive properties:	Minimum Ignition Energy (MIE): No ignition from 1mJ - 190mJ Minimum Ignition Temperature, cloud (IT): > 500 <sup>o</sup> C (932 °F) Minimum Smouldering Temperature (SM): > 311 <sup>o</sup> C (591.8 °F)
Oxidising properties:	Not available.
Other information:	Density: min. 400/max. 600 g/L

## 10- STABILITY AND REACTIVITY

Reactivity:	It is not expected that the product shows reactivity potential.
Chemical stability:	Product is stable under normal conditions of temperature and pressure.
Possibility of hazardous reactions:	High concentration of dust dispersed in air may result in danger of explosion.
Conditions to avoid:	High temperatures.
Incompatible materials:	There are not known incompatible materials with the product.
Hazardous decomposition products:	There are not known hazardous decomposition products.

## 11- TOXICOLOGICAL INFORMATION

### Information on toxicological effects

Acute toxicity:	It is not expected that the product presents acute toxicity.
Skin corrosion/irritation:	It is not expected that the product causes skin irritation.
Serious eye damage/irritation:	May cause mild irritation to the eyes, by mechanical effects with tearing and redness.
Respiratory or skin sensitization:	It is not expected that the product causes respiratory or skin sensitization.
Germ cell mutagenicity:	It is not expected that the product presents reproductive cell mutagenicity.
Carcinogenicity:	It is not expected that the product presents carcinogenicity.
Reproductive toxicity:	It is not expected that the product presents reproductive toxicity.
Specific target organ toxicity – single exposure:	Direct contact with the product may cause mild respiratory irritation with coughing and sneezing, by mechanical effects.
Specific target organ toxicity – repeated exposure:	It is not expected that the product presents specific target organ toxicity by repeated exposure.

Aspiration hazard:	It is not expected that the product presents aspiration hazard.
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<b>12- ECOLOGICAL INFORMATION</b>	
Toxicity:	It is not expected that the product presents ecotoxicity.
Persistence and degradability:	Due to the lack of data, it is expected that the product present persistence and it is not considered readily biodegradable.
Bioaccumulative potential:	It is not expected that the product presents bioacumulative potencial in aquatic organisms.
Mobility in soil:	Not determined.
Results of PBT and vPvB assessment:	Not available.
Other adverse effects:	There are no known adverse environmental effects for this product.

<b>13- DISPOSAL CONSIDARATIONS</b>	
Waste treatment methods:	The treatment and disposal should be evaluated for each specific product. Keep the product remains in its original and properly closed. Disposal should be performed as established for the product. Do not reuse empty containers. These may contain product residues and should be kept closed and sent for proper disposal as established for the product.

<b>14- TRANSPORT INFORMATION</b>	
<b>International regulations</b>	
<b>Road:</b>	UN - "United Nations" European Agreement concerning the International Carriage of Dangerous Goods by Road – ADR
<b>Rail:</b>	Convention concerning International Carriage by Rail (COTIF) Appendix C - Regulations concerning the International Carriage of Dangerous Goods by Rail - RID
<b>Sea:</b>	IMO – International Maritime Organization International Maritime Dangerous Goods Code (IMDG Code)
<b>Inland waterways:</b>	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways – ADN
<b>Air:</b>	IATA – International Air Transport Association Dangerous Goods Regulation (DGR)
<b>UN number:</b>	Not classified as hazardous to transport in the different modals.

Special precautions:	There is no need of special precautions.
Transport in bulk according to MARPOL 73/78, Annex II, and the IBC Code:	<p>Consult regulations:</p> <ul style="list-style-type: none"> <li>- International Maritime Organization. MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006;</li> <li>- International Maritime Organization. IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.</li> </ul>

<b>15- REGULATORY INFORMATION</b>	
Safety, health and environmental regulations/legislation specific for the substance or mixture:	<p>Convention concerning Safety in the use of Chemicals at Work (Convention 170) – International Labour Organization, 1990</p> <p>Regulation 689/2008 (exportation and importation of hazardous products)</p> <p>Regulation (EC) N° 1272/2008 of the European Parliament and of the Council of 16 December 2008.</p> <p>REACH Regulation (EC) n° 2015/830.</p>
Chemical safety assessment:	Not available.

<b>16- OTHER INFORMATION</b>
<p>This SDS was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other materials, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.</p> <p>SDS elaborated in November, 2017.</p> <p><b>Change control:</b></p>



<i>Version</i>	<i>Publication date</i>	<i>Changes</i>
01	0518.2017	Revision and adaptation

**Abbreviations:****CAS** – Chemical Abstracts Service**DNEL** – Derived No-Effect Level**EC** – European Commission**EEC** – European Economic Community**LD<sub>50</sub>** – Lethal Dose 50%**PBT** – Persistence, Bioaccumulation and Toxicity**PNEC** – Predicted No-Effect Concentration**vPvB** – Very persistent and very Bioaccumulative**UN** – United Nations**Bibliographic references:**

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: *Baseados na “Documentação” dos Limites de Exposição Ocupacional (TLVs®) para Substâncias Químicas e Agentes Físicos & Índices Biológicos de Exposição (BEIs®)*. Tradução Associação Brasileira de Higienistas Ocupacionais. São Paulo, 2016.

EPA USA. 2011. EPI Suite™ for Microsoft® Windows, v 4.10. United States: Environmental Protection Agency, Washington. 2011. Available at: <<http://www.epa.gov/oppt/exposure/pubs/episuite.htm>>. Access in: May 2017.

HSDB – HAZARDOUS SUBSTANCES DATA BANK. Available at: <<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>>. Access in: May 2017.

IARC – INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available at: <<http://monographs.iarc.fr/ENG/Classification/index.php>>. Access in: May 2017.

IPCS – INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY – INCHEM. Available at: <<http://www.inchem.org/>>. Access in: May 2017.

IUCLID – INTERNATIONAL UNIFORM CHEMICAL INFORMATION DATABASE. [S.l.]: European chemical Bureau. Available at: <<http://ecb.jrc.ec.europa.eu>>. Access in: May 2017.

NIOSH – NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. Available at: <<http://www.cdc.gov/niosh/>>. Access in: May 2017.



NITE-GHS JAPAN – NATIONAL INSTITUTE OF TECHNOLOGY AND EVALUATION. Available at: <[http://www.safe.nite.go.jp/english/ghs\\_index.html](http://www.safe.nite.go.jp/english/ghs_index.html)>. Access in: May 2017.

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