

# Trehalose 100



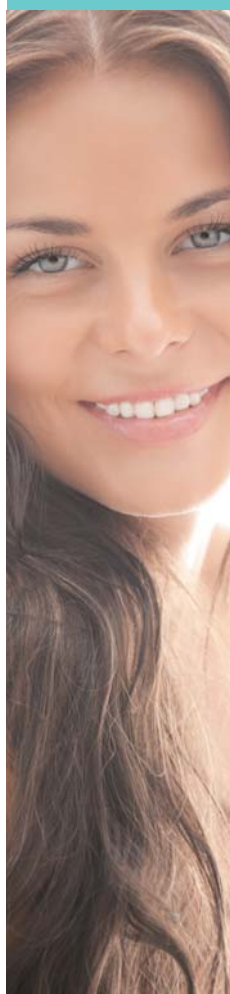
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unique  
disaccharide  
from  
Hayashibara

# Trehalose 100

for skin and hair protection



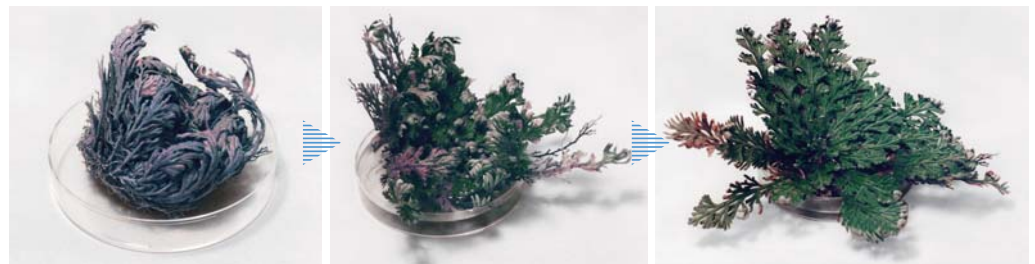
# Trehalose 100

## unique disaccharide from

**T**rehalose is a naturally occurring disaccharide present in a wide variety of plant and animal life. The special properties of trehalose enable organisms to survive in the harshest climatic conditions.

The presence of trehalose in plants is one of the reasons a barren desert blooms after rain. A good example of this phenomenon is the “Resurrection plant” - *Selaginella lepidophylla*. Trehalose protects the plant when it is dehydrated, allowing it to “come back to life” when the plant receives water. The same is true for plants and animals that survive freezing and thawing as part of their life cycle.

Hayashibara discovered and isolated two novel enzymes that allow for the mass production of trehalose.

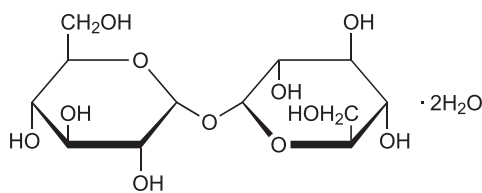


Desiccation form

Rehydration after 2 hr

Rehydration after 8 hr

### Structure of Trehalose Dihydrate



Trehalose is a white crystalline powder.

It consists of two glucose molecules bound by  $\alpha, \alpha$ -1,1 glycosidic linkage.



## Property

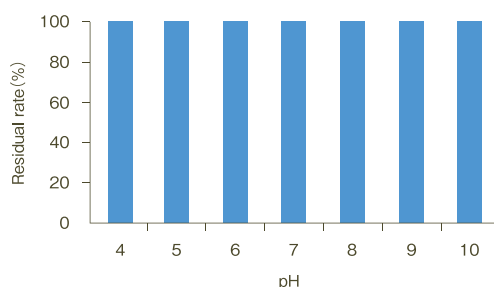
## 1

**High stability**

Trehalose from Hayashibara is a non-reducing sugar that is very stable over extremes of pH and temperature.

**pH stability of Trehalose solution**

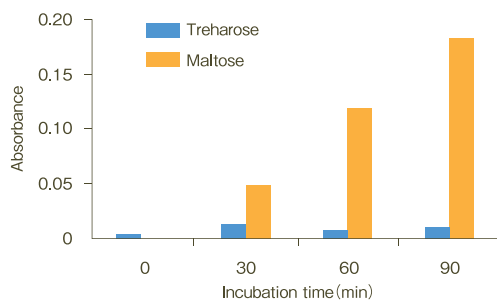
Trehalose is stable over a pH range of 4 to 10 at 100 °C for 24 hours.



Trehalose was dissolved at a concentration of 4% buffer solution at various pH levels and boiled in an oil bath. The residual concentration of trehalose was determined using a HPLC method.

**Resistance to coloration by heating**

Trehalose is a non-reducing sugar that is stable at high temperatures for extended periods of time. Additionally, Trehalose has been shown not to react with amino acids or peptides so it does not participate in Maillard reactions.



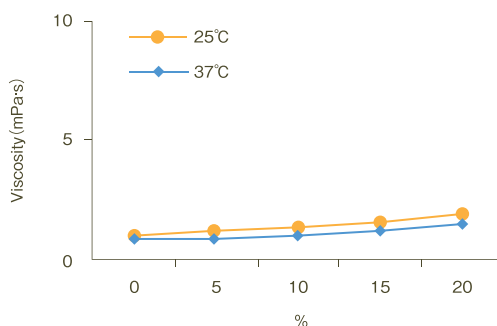
Sugar solutions (10%) dissolved in 0.033mol/L phosphate buffer (pH6) were heated for the indicated times at 120 °C in an oil bath. Coloration was measured by a spectrophotometer at 480 nm.

## Property

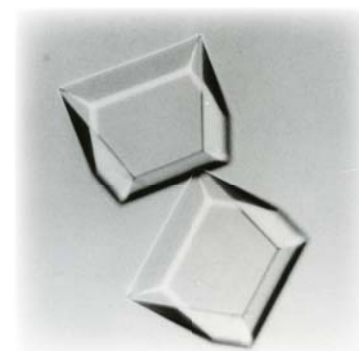
## 2

**Low viscosity****Viscosity of Trehalose solutions**

Trehalose has low viscosity at relatively high concentrations and at various temperatures. It has been shown that Trehalose does not interact with other viscosity agents so it does not effect the desired viscosity of solutions.



The viscosity of Trehalose solution was measured using a B-type viscometer. Trehalose possessed low viscosity across various concentrations and at two temperatures.



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**INCI name: Trehalose**

**Trehalose 100 is manufactured by  
Hayashibara Co., Ltd. in Japan.**

