TREHALOSE 100PH

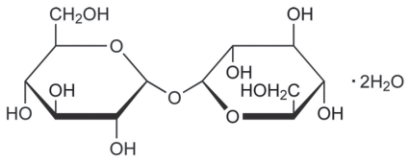
JP, USP-NF, Ph.Eur.

General

Trehalose is a dihydrous crystalline and non-reducing disaccharide consisting of two glucose molecules linked by an α,α–1,1 bond.

Trehalose is manufactured from starch using enzyme technology.

Chemical formula: $C_{12}H_{22}O_{11} \cdot 2H_2O$
Molecular weight: 378.33
CAS RN®: 6138-23-4

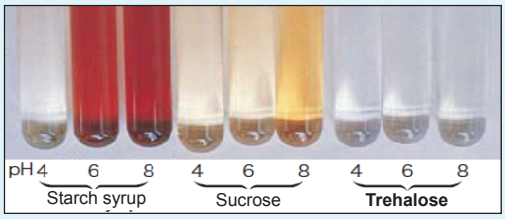


Properties

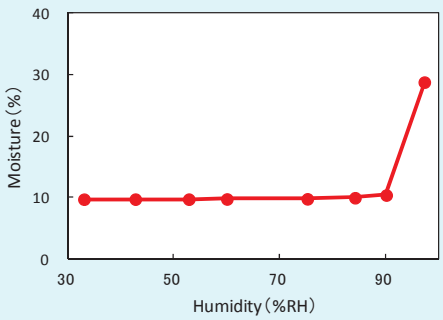
- Trehalose is 38% as sweet as a 5% solution of sucrose, with less aftertaste and an overall "clean" taste profile.
- Trehalose is a non-reducing saccharide, which when heated does not caramelize or participate in Maillard reactions. These properties make trehalose advantageous when processing and heat-sterilization are required.
- Trehalose remains exceptionally stable in the presence of heat and acid. Trehalose can tolerate a pH of 2 at 100˚C for 24 hours.
- Due to its low hygroscopicity, trehalose remains free flowing at high relative humidity.
- The glass-transition temperature (Tg) of trehalose is approximately 120˚C, which is higher among disaccharides. Consequently, trehalose maintains a stable glass state at higher temperatures.

Reaction of glycine with saccharide solutions

Saccharides (12.5%) with glycine (0.5%) at 121℃ for 1 hour



Water content of trehalose at various relative humidities after 7-day storage



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Applications

■ Masking effect

Trehalose can mask unpleasant tastes and odors, improving the quality and acceptability of finished pharmaceuticals such as dry syrups, liquid preparations, and chewable tablets.

Masking effect on aftertaste of high intensity sweeteners

	Concentration (%)	Control	Trehalose (%)				Sucrose (%)			
			0.5	1.0	2.0	5.0	0.5	1.0	2.0	5.0
Acesulfame potassium	0.05	-	±	+	+	++	-	-	±	+
Sucralose	0.016	-	+	+	++	++	-	-	+	+
Aspartame	0.05	-	+	+	+	++	-	-	±	+
Glycosidic stevia	0.083	-	+	+	+	++	-	-	±	+

*Masking effect on aftertaste: - = None; ± = some; + = strong; ++ = very strong
*The sweetness of high intensity sweeteners was standardized to a 10% sucrose solution.

Packaging

20 kg (PE bag in carton box)

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