



## Astraea™ Allulose — a new, pure way to sweeten your products.

Formulate reduced, low, or calorie-free foods and beverages while maintaining the great taste of full-sugared variants.



### QUICK FACTS

#### What is Allulose?

- One of many “rare sugars” — substances found ubiquitously in nature like several plants, fruits, vegetables, and other foods
- The monosaccharide isomer of the sugar fructose (“fruit sugar”) with a molecular weight of 180.16
- Chemically similar to fructose
- More pleasing “sucrose-like” sweetness compared to other low calorie sweeteners
- Neither metabolized by the body nor fermented in the colon being excreted via urine and feces
- Also scientifically referred to as D-psicose
- First to discover and commercialize in the world

#### How is it made?

Producing Astraea Allulose involves the enzymatic isomerization of fructose via proprietary enzyme technology. This results in pure crystalline allulose with **the lowest caloric content** (0.2 kcal per dry gram) of any commercially available and naturally occurring sweeteners.

#### What will it bring to my formulations?

- Astraea Allulose can be used for its near-zero caloric content as well as its true “sucrose-like” sweetness at ~70% that of crystalline sucrose\*
- **Astraea Allulose has been deemed GRAS by the US FDA** without limitations to its use — a typical use rate ranges from 2%-100% of the finished food and beverage

FLIP FOR MORE DETAILS.



**ASTRAEA™**  
Allulose

\*Depends on the application, in-use rates, context and conditions of ultimate consumption

## Astraea™ Allulose Features/Benefits

Sweetness	Exhibits a synergistic sweetness response (alone and/or in combination with other nutritive and non-nutritive sweeteners) exhibits. Combinations can be used with intense sweeteners to lower overall costs, provide mouth feel, and reduce calories. As a result of the perceived increase in sweetness over sucrose, less total sweetness could be used to further reduce calories, while maintaining sweetness levels.
Flavor	Often described as light and clean. This property allows the accentuation of other flavors, helping to enhance flavor in products while reducing costs. When used with a high-intensity sweetener, it minimizes lingering aftertastes.
Solubility	Exhibits great solubility in both aqueous and alcohol solutions compared to other sweeteners.
Humectancy	Adds humectancy to foods. This property can be useful in all types of products to prevent “drying out.” As a cryoprotectant, Astraea Allulose prevents large ice crystals from forming during freezing, which can cause coarse and icy foods and damage many frozen foods.
Water Activity	Exhibits low water activity like fructose.
Metabolism	Among nutritive sweeteners, allulose has the lowest influence on blood sugar (glycemic index) by itself. The glycemic index describes the rate at which glucose enters the bloodstream after consumption of a food. It is useful in preparing low calorie foods, specific dietetic-needs foods, and athletic beverages, among other formulations.

## Applications

Food Type	Allulose Maximum Proposed Use Level (%)
Beverages (non-alcoholic) <i>Low calorie, reduced calorie</i>	3.5
Candies (hard) <i>Low calorie, reduced calorie</i>	50
Candies (soft) <i>Low calorie, reduced calorie</i>	25
Cereals <i>Regular</i>	2
Cereals <i>Low calorie, reduced calorie</i>	5
Chewing gum	50
Confections and frostings	5
Dressings for salads	5
Frozen dairy desserts (ice cream, soft serve, sorbet) <i>Low calorie, reduced calorie</i>	5
Gelatins, pudding and fillings <i>Low calorie, reduced calorie</i>	10
Jams and jellies	10
Sugar	10
Sugar substitutes	100
Sweet sauces and syrups <i>Low calorie, reduced calorie</i>	10
Yogurt and frozen yogurt <i>Low calorie, reduced calorie</i>	5

## Typical Chemical and Physical Properties and Characteristics

Appearance	White, Free-Flowing Crystals or Clear Yellow Liquid
Taste/Flavor	Clean, Sweet
Aftertaste	None
Odor	None

## Essential Properties

Moisture, %	1.0% (Crystalline), Brix. 70.0 (Liquid)
Ash, Sulfated, %	0.00
Melting Point	109°C

## Carbohydrate Composition (dry basis)

Allulose	98.5% (w/w)
Other “sugars”	1.5% (w/w)

Labeling	Regulatory Status	Recommended Storage Conditions
Allulose	US FDA GRAS Status granted June, 2014 (GRN000498)	< 25°C and < 50% Relative Humidity

Call +81-72-771-2043 or visit [astraea-allulose.com](http://astraea-allulose.com) for more information.

MATSUTANI CHEMICAL INDUSTRY CO., LTD.  
5-3 Kita-Itami, Itami City, Hyogo 664-8508, Japan  
Phone +81-72-771-2043 Fax +81-72-771-2065

  
A rare solution for pure sweetness.