



# Shandong Saigao Group Corporation.

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## CRYSTAL ISOMALTULOSE

### PRODUCT INTRODUCTION:

Isomaltulose, or 6-O- $\alpha$ -D-glucopyranose-D-fructose, is a crystalline reducing disaccharide formed by the  $\alpha$ -1,6 glycosidic bond of glucose and fructose. The molecular formula is  $C_{12}H_{22}O_{11} \cdot H_2O$ . Isomaltulose crystals contain 1 molecule of water, orthorhombic crystals, and their appearance is similar to white sugar.

It is a low GI sugar does not cause a rapid increase in blood sugar and insulin levels, and can provide the human body with more stable energy for a longer period of time.

### APPLICATION:

Sports nutrition foods, low GI foods, diet foods, dental foods, brain foods, beverages, etc.

### FUNCTION:

1. The calories are the same as sucrose, 4Kcal/g.
2. Slow metabolism. When isomaltulose is metabolized, its hydrolysis rate is 1/5 ~ 1/4 that of sucrose, and glucose is released slowly throughout the metabolic process.
3. Isomaltulose is a low GI sugar with a GI value of only 32, which has a good slow control effect on blood sugar. The blood sugar response is characterized by slow, low blood sugar levels and long duration, which can provide the human body with energy for a longer and more stable time. At the same time, the effect on insulin levels is also small.
4. It can provide energy for the human body for a long time. After consuming isomaltulose, the blood sugar level and the concentration of insulin are increased by 10-20% compared with fasting, and this state can be maintained for a long time. This can provide a certain concentration of energy source to the brain for a long time, keep the brain full of energy, and stabilize the body's function and mental state.

### PHYSICAL PROPERTIES:

1. The melting point is 122-123°C, which is lower than that of sucrose (182°C).
2. The reducibility is 52% of glucose.
3. The sweetness is 42% of that of sucrose, and the sweetness characteristics are similar to that of



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sucrose.

4. Isomaltulose is non-hygroscopic.
5. At room temperature, the solubility of isomaltulose is half of that of sucrose, and the solubility will increase as the temperature rises, reaching 85% of that of sucrose at 80°C.
6. Isomaltulose is not easy to decompose under acidic conditions, which helps maintain isosmotic pressure. For example, the pH of sports drinks is relatively low, generally at pH 3. Adding sucrose to this type of beverage is easily decomposed into glucose and fructose, resulting in an increase in the number of osmotic active particles and disrupting the osmotic pressure balance. However, isomaltulose is not easy to decompose under acidic conditions, and it is an ideal substance to maintain isosmotic pressure balance.
7. The thermal stability of isomaltulose is slightly worse than that of sucrose. A slight browning reaction starts at 120°C, and browning, decomposition and polymerization appear at 140°C.
8. Colorability. Isomaltulose is easier to color than sucrose when heated at high temperature for a long time, but it is not easy to color at pH 3-4.
9. Difficult to ferment type. Isomaltulose is not fermented by most bacteria and yeasts.
10. Mask the peculiar smell, balance the taste and flavor.

## PRODUCT ANALYSIS:

### Crystal Isomaltulose

Product name	Crystal Isomaltulose	
Item	Standard & Spec GB 1886.182	Method
Test and smell	Has the unique fragrance of this product, sweetness	GB 1886.182
Appearance	White crystalline powder without visible impurities	GB 1886.182
Isomaltulose (dry matter) , %	≥98.0	GB 1886.182 (HPLC)
Other sugar, %	≤2.0	GB 1886.182 (HPLC)



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Moisture, %	≤1.0	GB 1886.182
Ash, %	≤0.1	GB 1886.182
Lead (mg/kg)	≤ 0.5	GB 5009.12-2014
Total arsenic (mg/kg)	≤ 0.5	GB 5009.11-2017
Aerobic plate count (cfu/g)	≤1000	GB 4789.2-2016
Coliforms (cfu/g)	≤ 10	GB/T 4789.3-2016
Mold and Yeast (cfu/g)	≤ 25	GB 4789.15-2016
Staphylococcus aureus /25g	Negative	GB 4789.10-2016
Salmonella /25g	Negative	GB 4789.4-2016

## **LABELING:**

The packed label indicates:

1. Product name
2. Batch Number
3. Manufacture and expiry date
4. Net weight and gross weight of contents
5. Name and address of manufacturer
6. Name and address importer

## **PACKING & TRANSPORTATION**

### **Isomaltulose powder**

The outer is paper-polymer bag, the inner is double food grade PE plastic bag.

Net weight : 25kg /bag

Without pallet---Max 20MT/20'GP



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With pallet---Max 18.5MT/20'GP

## **STORAGE:**

Store in dry and cool condition, keep away from material with odor or of volatilization, protect from water and wet.

## **SHELF-LIFE:**

Crystal Isomaltulose: Best within 36 months from manufacturing date.

