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C\*Dry™

Thoughts  
for food

> Sweeteners



C\*DRY™ MALTODEXTRIN AND  
C\*DRY™ DRIED GLUCOSE SYRUP

# Maltodextrin and Dried Glucose Syrup

C\*Dry™ maltodextrin and C\*Dry™ dried glucose syrup have many functions in foods and beverages. Due to their unique character, both product groups alter texture, appearance, mouth-feel, sweetness as well as nutritive value. C\*Dry™ maltodextrin and C\*Dry™ dried glucose syrup both are obtained from starch by partial enzymatic hydrolysis followed by spray drying. They are water soluble, non-sweet powders.

Physical, chemical and functional properties of maltodextrins and dried glucose syrups are mainly determined by the degree of starch hydrolysis.

## Differences between C\*Dry™ maltodextrin and C\*Dry™ dried glucose syrup?

Maltodextrins are non-sweet, nutritive, saccharide polymers that consist of D-glucose units linked primarily by α-1,4 linkages and having a DE (Dextrose Equivalent) between 3 and 20. Dried glucose syrups have DE value typically in range 20 - 32.

They are generally recognized as safe (GRAS) as direct human food ingredients at levels consistent with current good manufacturing practices.



### Effect of Dextrose Equivalent value on maltodextrin / dried glucose properties

Dextrose Equivalent (DE)	Low DE	High DE
Viscosity/Bodying agent	Short bar	Long bar
Browning Reaction	Short bar	Long bar
Hygroscopicity	Short bar	Long bar
Sweetness	Short bar	Long bar
Prevention of coarse crystals growth	Short bar	Long bar
Solubility	Short bar	Long bar
Osmolality	Short bar	Long bar

## Applications Properties

### Nutrition

Maltodextrins and dried glucose syrups have the same calorific value as starch or sugar (17kJ/g or 4 Kcal/g). They are easily digestible carbohydrates, providing energy in more moderate way compared to dextrose. As such, they are often used in sport drinks to modify their osmolality.

### Viscosity

Maltodextrins contain mainly long chain saccharides, so they develop viscosity even at low concentration. Very valuable in many applications, in addition they positively impact mouthfeel and creaminess when used.

### Inhibition of crystallization

All starch hydrolysates exert an influence on the crystallization of sweeteners in solution. Crystal formation is directly related to the saturation points of the various substances in solution. These are largely determined by molecular weight, temperature and the presence of other substances that may lower or raise total solubility and the mobility of

molecules of the saccharide e.g. sucrose, in order to form the crystal. The important characteristic of maltodextrin is the ability to strongly inhibit crystallization.

### Maillard reactions

The desired browning effect in certain food applications is achieved through a condensation reaction between aminoacids and reducing sugars, resulting in the formation of melanoid pigments. With the choice in saccharide pattern, the strength of the Maillard reaction can be controlled. Very low content of dextrose and other reducing sugars makes maltodextrins and dried glucose syrups very stable, and they do not support color or flavor compounds development. This makes them ingredients of choice for bland color biscuits and wafers.

### Hygroscopicity

Combination of low dextrose content and high amount of long chain saccharides makes maltodextrins and dried glucose syrups very stable during storage. This makes them perfect bulking agent in many powder mixes, supporting excellent flowability of powders during storage time.

### Sweetness

Although dried glucose syrups are more sweet than maltodextrins, both are not considered as sweet ingredients. Their sweetness is far below 20% of that of sucrose. In combination with bland smell, they are ideal as flavor carrier and bulking agent.

## Applications

### Confectionery

- > Tablets
- > Chewy candies

### Bakery

- > Biscuits and wafers
- > Cakes
- > Creams and fillings

### Convenience foods

- > Food powders
- > Soups and sauces
- > Spray dried products
- > Baby food
- > Spices and seasonings

### Beverages

- > Concentrates
- > Beer

### Dairy and ice creams

- > Condensed creamer
- > Ice creams
- > Sorbets

### Other

- > Cereal bars
- > Extruded snacks
- > Meat products



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