

Maltodextrins

Supporting specialised nutrition



INGREDIENTS FROM OUR OWN FARMS

Maltodextrins are **ingredients of plant origin** derived from **maize, wheat and potato starch**.

EU starch manufacturers use **raw materials from conventional crops** (non-GMO varieties).

Due to their wide variety of applications, maltodextrins are in great demand.

They are an **ideal carbohydrate for use in specialized nutrition** such as infant nutrition, sports nutrition and clinical applications.

They are also used as a partial substitute for **fats**. They improve the texture of food, without increasing the calorific value.

Maltodextrins are prized for their **texturizing, gelling, emulsifying and non-crystallizing properties**.

They have a neutral taste, and can help incorporate spices in dishes.

Maltodextrins also have **pharmaceutical and cosmetic** applications, as excipients (inactive ingredient) in drug manufacturing, for example.



Still have questions about starch and starch-based ingredients in food?
VISIT WWW.STARCHINFOOD.EU TO LEARN MORE.

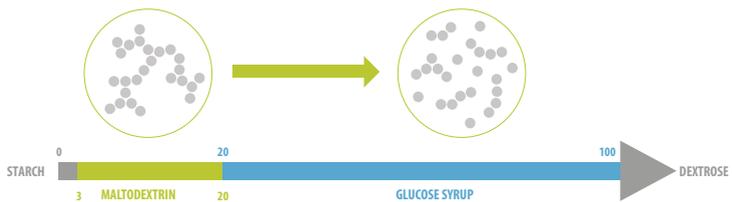


MALTODEXTRINS, INGREDIENTS FOR ADVANCED NUTRITION

Maltodextrins are **part of the carbohydrates food group**. They have a calorific value of **4 kcal/g**. Carbohydrates support a number of the body's basic metabolic processes and should form 50-55% of the body's total energy intake. The EFSA has confirmed that the consumption of carbohydrates, including maltodextrins, supports the normal functioning of the brain and muscles(1).

Maltodextrins are partially hydrolysed starches, composed of longer chains than glucose. The degree of hydrolysis is measured as a Dextrose Equivalent (DE). Maltodextrins have a DE of **between 3 and 20**. Starch has a DE of 0, whilst dextrose (pure glucose) has a DE of 100.

This slight hydrolysis makes starch soluble.



Maltodextrins come in powdered form and have both **neutral taste and very little sweetness**.

(1) Hofman et al., 2015. Nutrition, Health, and Regulatory Aspects of Digestible Maltodextrins. Critical Reviews in Food Science and Nutrition.

DID YOU KNOW?

Maltodextrins must by law be listed as ingredients.

Both maize and wheat-derived maltodextrins are gluten-free. This is confirmed in EU Regulation No.1169/2011. Maltodextrins are therefore in this regard suitable for coeliacs.

MALTODEXTRINS: A VITAL ASPECT OF SPECIALIST NUTRITION

SUPPORTING INFANT AND SPORTS NUTRITION

Maltodextrins are considered to be a **good source of energy** for both **babies** and **sportspeople** as they are **easily absorbed** in the small intestine and thus quickly available for use by the body.

They can also help **balance intestinal osmolarity** which may be altered by intestinal disorders in infants (1,2). As osmolarity is connected to hydration, maltodextrins help **maximise hydration** in infants and sportspeople thanks to the **variety of maltodextrins with different dextrose levels**.

Moreover, maltodextrins are suitable for infant nutrition as they are **easy to use**. Their solubility ensures a **lump-free formula** for bottle-feeding and gives milk a perfect consistency.

Regulations governing infant nutrition include maltodextrins in the list of authorised carbohydrates for use in **food intended for infants** (EU Regulation No. 609/2013 and Delegated Regulation (EU) No. 2016/127).

SUPPORTING DIETARY SCIENCE

Maltodextrins can be used to **partially replace fats** (or lipids) whilst maintaining the texture of food products (3). **Fats** have a calorific value of 9 kcal/g, whilst **carbohydrates** have a calorific value of 4 kcal/g. Using maltodextrin to replace fats can thus reduce the **calorie content of products**. This is why they are used in diet products.

(1) EFSA, 2014. Scientific Opinion on the essential composition of infant and follow-on formulae.

(2) Gregorio et al., 2010. Cochrane review: Polymer-based oral rehydration solution for treating acute watery diarrhoea. Evid. Based Child Health: A Cochrane Rev. J.2010:1612–1675.

(3) Stubbs et al., 2000. Energy density of foods: effects on energy intake. Critical reviews in food science and nutrition. 40: 481-515.

(4) Gross et al., 2004. Increased consumption of refined carbohydrates and the epidemic of type 2 diabetes in the United States: an ecologic assessment. The American journal of clinical nutrition. 79: 774-779.

(5) Johnson et al., 2009. Dietary sugars intake and cardiovascular health a scientific statement from the American heart association. Circulation. 120: 1011-1020.

(6) Lecoultre et al., 2013. Fructose-Induced Hyperuricemia Is Associated With a Decreased Renal Uric Acid Excretion in Humans. Diabetes care. 36: e149-e150.

DID YOU KNOW?

Numerous scientific studies have investigated the effects of carbohydrates on health. No study has established any negative correlation with maltodextrins, when consumed as part of a healthy diet (4,5,6). On the contrary, maltodextrins are recognised as a useful source of energy in sports.

MALTODEXTRINS: THE JOURNEY FROM THE FIELD



1

EU farmers cultivate the crops required to produce starch (e.g. maize, wheat, potatoes), which involves the work of 60,000 agricultural workers.



2

The starch is then partially hydrolysed. Starch is broken down using similar processes to those which occur in the human body (enzymes in saliva, for example).



3

The maltodextrins are then dried to form a white powder.



4

There are a wide range of different maltodextrins for different markets, e.g. dietary, clinical, sports and infant nutrition.

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OVERVIEW

Derived from conventional (non GMO) crops such as wheat, potatoes and maize, maltodextrins are obtained through the **partial hydrolysis of starch**.

Especially suitable for infant nutrition and clinical nutrition, maltodextrins are a **good source of energy**, particularly for babies, as they are **easily digestible and absorbed** by the body.

Maltodextrins enable the osmolarity (i.e. solution concentration) of drinks to be changed, making them ideal for use in **sports hydration products**.

With very little or no sugar, they are also **soluble**, with **texturizing, gelling, emulsifying, non-crystallizing and other useful properties**.

