

Tartaric acid - description, benefits, effects on the body and the best sources

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Abstract. When it comes to tartaric acid, you involuntarily remember the products from which it is produced. The acid is often found in various foods, but its maximum content is in various grape varieties.

Keywords: inic acid, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

Products rich in tartaric acid:

- Wine
- Grape juice [1]
- Green apples [2]
- Cherry [3]
- Mandarin [4]
- Orange [5]
- Lime
- Blackcurrant [6]
- Gooseberry
- Rhubarb
- Cherry [7]
- Garnet [8,9]
- Quince
- Cowberry
- Papaya

General characteristics of tartaric acid

Tartaric acid is a common natural compound. Chemists know it as *dioxysuccinic* or *tartaric acid*. The acid appears as transparent crystals, odorless and colorless, with a very sour taste. By its chemical nature, it is a dibasic hydroxy acid with the formula $C_4H_6O_6$. It is thanks to tartaric acid that we are able to enjoy such a wonderful drink as wine. And not only! It is also included in a huge variety of jams, sweets and other confectionery products.

The first information about tartaric acid dates back to the first century of the new era, and to its discoverer, the alchemist Jabir ibn Hayyan. However, in order to obtain acid in its modern form, it took another 17 centuries, and the birth of the famous (future) Swedish chemist Carl Wilhelm Scheele.

An interesting fact - it is known that in ancient Rome, noble ladies washed themselves with wine. In areas where winemaking was not so popular, beauties regularly wiped their skin with the juice of fresh berries.

Today, tartaric acid has found wide application in various industries. For example, in the food industry it is additive E334. Thanks to its antioxidant properties [10], the shelf life of food products increases. It is present in confectionery products, fruit jellies, jams, juices and drinks.

Daily human requirement for tartaric acid:

- for women -13-15 mg;
- for men - 15-20 mg;
- for children - from 5 to 12 mg.

The need for tartaric acid increases:

- with increased radiation (50g of natural red wine daily);
- in stressful situations [11];
- in case of disturbances in the functioning of the gastrointestinal tract associated with low acidity;
- with sluggish gastrointestinal tract function.

The need for tartaric acid is reduced:

- in case of increased stomach acidity;
- in case of impaired absorption of acid in the body. In this case, it is necessary to consume products that contain tartrates (tartaric acid salts);
- with a tendency to the appearance of herpes [12] and overly sensitive skin;
- if you are going to go to the beach or any other place with active solar radiation.

Absorption of tartaric acid

Tartaric acid is well absorbed. This is due to the fact that it not only quickly dissolves in water [13], but also takes an active part in the regulation of acid-base balance. In addition, this acid can also be converted into other compounds necessary for the body, making it a very important acid for health.

Beneficial properties of tartaric acid and its effect on the body:

Like any plant acid, tartaric acid has a number of beneficial properties for the human body.

1. External use of tartaric acid. Useful action:

- helps exfoliate dead layers of skin;
- helps reduce the number of acne [14] and pimples;
- perfectly whitens and moisturizes the skin.

2. Internal use of tartaric acid. Beneficial features:

- increases the speed of metabolic processes;
- increases skin firmness and elasticity;
- smooths out minor skin defects;
- promotes collagen synthesis [15];

- is an excellent antioxidant;
- removes radiation from the body;
- dilates blood vessels;
- tones the cardiovascular, nervous and digestive systems;
- Tartaric acid helps saturate the body with natural fruit acids of biological origin.

However, if the safety rules for using tartaric acid are not followed, unpleasant consequences may occur!

Signs of tartaric acid deficiency:

It is important that a lack of tartaric acid can lead to such consequences as:

- violation of the acid-base balance in the body;
- sluggish gastrointestinal tract function;
- rashes and skin irritation.

Signs of excess tartaric acid:

Excess of this acid can cause metabolic disorders, which can negatively affect your health. For example, you should be very careful if you have sensitive skin or skin diseases (such as herpes).

You also need to be alert when exposed to direct sunlight for a long time, or if you have individual contraindications to the use of this substance. Large doses of tartaric acid are unsafe because it is a muscle toxin that can cause paralysis and death.

Main features:

- headache [16];
- intestinal disorder;
- nausea, vomiting;
- diarrhea;
- with a high overdose – paralysis;
- death.

Interaction of tartaric acid with other elements:

Tartaric acid interacts with water, vitamin PP, and vitamin K [17]. In addition, this acid is capable of reacting with proteins [18], carbohydrates [19] and microelements. Thanks to this, it is able to form vitamin and mineral complexes that have a beneficial effect on the entire body.

Factors influencing the content of tartaric acid in the body

Factor one: regular consumption of foods rich in tartaric acid.

Factor two: proper functioning of the gastrointestinal tract, the body's ability to absorb acid.

Tartaric acid is a component of beauty and health

It is also impossible not to mention another, no less significant environment for the use of tartaric acid - cosmetology. Tartaric acid promotes:

- exfoliation of dead epidermal cells;
- stimulates the development of young cells, thereby rejuvenating the skin.

The most popular forms of using tartaric acid in cosmetology are various serums, creams, lotions for the face and body, moisturizers, peelings, face wash gels, hair shampoos, and acne removers. Experts note the excellent characteristics of this acid - maximum effectiveness with minimal risk of irritation.

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