

NATURAL L(+)-TARTARIC ACID E 334: TECHNICAL DATA SHEET

Villapana S.p.A. applies the HACCP self-control system to guarantee our products (food additives) comply with the law and with contract specifications and prevent hygienic and health hazards, safeguarding public health.

Chemical name: L(+)-tartaric acid, L-2,3-dihydroxibutanedioic acid

Chemical formula: C₄H₆O₆

Molecular mass: 150.09 g/mol (The Merck Index)

CAS number: 87-69-4, **EINECS number:** 201-766-0

States alterations: none (The Merck Index)

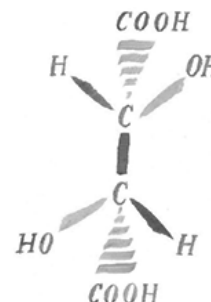
Melting range: 168-170°C (The Merck Index)

Bulk density (20°C): 1.76 g/cm³ (The Merck Index)

pK_{a1} (25°C) 2.98, **pK_{a2} (25°C)** 4.34 (The Merck Index)

pH (sol. 0.1 N): 2.2 (The Merck Index)

Solubility (water 20°C): 1.39 g/mL (The Merck Index)



DEFINITION

Tartaric acid is of **natural** origin, obtained by extraction of lees during winemaking; it contains no less than 99.5 per cent and not more than the equivalent of 101.0 per cent of the dried substance. Tartaric acid appears as white or almost white crystalline powder or colorless crystals. (Ph. Eur.)

Dextrorotatory tartaric acid is the natural diastereoisomer of tartaric acid; it is widely present in nature in the juice of many kinds of fruit, both free and combined with potassium, calcium, or magnesium. It is known since ancient times as its potassium acid salts deposited as crystals during fermentation of wine and was called *faecula* (little yeast) by the Romans. In modern processes, the potassium bitartrate obtained during wine making is first converted into calcium tartrate, which is then hydrolysed into tartaric acid and calcium sulphate. Besides being used in wine making – where it helps to correct the natural acidity of musts and wines – tartaric acid is also used to prepare effervescent powders (bubbly table water) and preserved food, in bread making (preparation of bread making emulsifying agents), in pharmaceuticals (preparation of medicines) and in the construction business, where tartaric acid is used to prepare gypsum to be used on prefab walls and panels (added to gypsum, tartaric acid makes it catch more slowly and this makes it easier to distribute). (The Merck Index)

CHEMICAL-PHYSICAL ANALYSES

Synoptic table and inside specifications:

NATURAL L(+)-TARTARIC ACID	EUROPEAN REGULATIONS			AMERICAN REGULATIONS	
	REG. (UE) 231/2012	PH. EUR. / BP	OIV	NATIONAL FORMULARY	FOOD CHEMICAL CODEX
Identification tests	tartrate	acidity, tartrate (test A, B)	further test (test 6.1, 6.2, 6.3, 6.4)	tartrate, IR (test A, B)	tartrate, IR
Assay	> 99.5%	99.5 - 101.0%	> 99.5%	99.7 - 100.5%	99.7 - 100.5%
Specific optical rotation	+ 11.5 - + 13.5°	+ 12.0 - + 12.8°	+ 11.5 - + 13.5°	+ 12.0 - + 13.0°	+ 12.0 - + 13.0°
Loss on drying	< 0.5%	< 0.2%		< 0.5%	< 0.5%
Sulfated ash	1000 mg/kg	< 0.1%	< 0.1%		< 0.05%
Sulfates		< 150 ppm	< 1 g/kg	test 221	test Sulfate
Chlorides		< 100 ppm	< 1 g/kg	test 221	
Oxalates (oxalic acid)	< 100 mg/kg	< 360 ppm	< 100 mg/kg	test Limit of oxalate	test Oxalate
Calcium		< 200 ppm			
Iron			< 10 mg/kg		
Arsenic			< 3 mg/kg		
Mercury	< 1 ppm		< 1 mg/kg		
Lead	< 2 ppm		< 2 mg/kg		< 2 ppm
Heavy metals				< 10 ppm	

Sieve analysis:

TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
Min 80% < 125 µm Max 5% > 250 µm	Min 80% < 300 µm Max 5% > 400 µm	1-15% > 125 µm 70-80% > 250 µm 10-25% > 425 µm	Approx 90% 300 – 850 µm	Min 90% 425 – 850 µm

10% measurement uncertainty.

Nutritional values for 100 g of product:

Energy value	1292 kJ, 298 kcal	Ash	< 0.05%
Sodium	absent	Fats	absents
Potassium	-	Cholesterol	absent
Calcium	< 200 ppm	Proteins	absents
Iron	< 10 ppm	Carboxylic acids	99.5 - 101.0%
Water	-	Vitamins	absents

REGULATORY REFERENCES

Use and quantity: In accordance with European Regulation 1129/2011, the additive is authorized to be used *quantum satis* in all the categories; 5000 mg/kg in cocoa and chocolate products and in processed cereal-based foods and baby foods for infants and young children.

Declarations:

Villapana S.p.A. declares the following:

No *allergens* mentioned in Annex II of Regulation (EU) No. 1169/2011 on the provision of food information to consumers are present in the product Natural L(+)-tartaric acid, neither by addition nor by cross-contamination; no *gluten* is present, although the indication "gluten-free" in the food additive labelling does not appear, being regulated by Regulation (EU) No. 828/2014 on the requirements concerning consumer information on the absence of gluten or its presence to a reduced extent in food as an indication provided on a voluntary basis pursuant to Article 36 of Regulation (EU) No. 1169/2011 on the provision of food information to consumers; it is suitable for consumption by *vegans* and *vegetarians*.

The product belongs to the category of food additives (Regulation (EC) No 1333/2008), where there are no Regulations pertaining to this category, as in this case, we refer to the Regulations for the category of foodstuffs. No *genetically modified organisms (GMOs)* are present in the product Natural L(+)-tartaric acid, therefore Regulations (EC) No. 1829/2003 on genetically modified food and feed and (EC) No. 1830/2003 concerning traceability and labelling of genetically modified organisms and traceability of food and feed products produced from genetically modified organisms are not applicable.

Certifications: Natural L(+)-tartaric Acid is Kosher certified and Halal certified.

OTHER INFORMATION

Packaging: The finished product is packaged in 25 kg paper bags with polyethylene inside, in 25 kg drums containing the bagged product, or in 500 or 1000 kg bags, marked according to the law and palletised.

Shelf life: The period of minimum durability of tartaric acid is 5 years, in its original packaging sealed by the producer. As the product is hygroscopic and available in different granulations, powders cake at different times.

Recommended storage conditions: Store in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Superimposing unallowed.