INDUSTRIA CHIMICA VALENZANA I.C.V. S.p.A.

NATURAL TARTARIC ACID SINCE 1946

SUMMARY

INDUSTRIA CHIMICA VALENZANA I.C.V. S.p.A.

Industria Chimica Valenzana ICV S.p.A. was founded in 1946, and since its foundation it is one of the world leader in production of Natural Tartaric acid.

The factory is located in Borgoricco, a village 15Km far from Padova and 25Km far from Venice, in the north-east of Italy.

Since 1984 the company belongs to the Bertolino Group, leader in the production of ethanol and other derivatives of the wine industry.

The Bertolino group could make big investments on this company in order to hold its leadership in the market. During these years we increased the production capacity and the efficiency of the process, in the full respect of the environment.

The customer satisfaction is our first aim. At present ICV can serve several important international companies operating in many different fields: from chemical industry to food and pharmaceutical manufacture.

The quality standards of the company are at the higher levels.

NATURAL, L (+) TARTARIC ACID $C_4H_6O_6$

DESCRIPTION

Tartaric acid is an organic acid, widely spread in nature, expecially in fruits, abundant as a free acid or combined as potassium, calcium or magnesium salt. The most rich source of natural tartaric acid, and the only one used for industrial production, is grapes. It is well known from ancient times, that during the fermentation of grapes, crystals of potassium ditartrate (tartar) grow on the wall of barrels or make a deposit of fine sediment: the wine lees.

At present tartar and wine lees are the raw materials for modern industrial production of tartaric acid.

L (+) tartaric acid

EC N^{er} E334 **CAS N^{r} 87-69-4** **EINECS N^{r} 2017660**

PHYSICAL AND CHEMICAL PROPERTIES

Tartaric acid, (2R,3R)-2,3-dihydroxybutane-1,4-dioic acid, appears as colourless crystals or white powder, very soluble in water, freely soluble in alcohol; it is odourless, it has a strong acidic taste.

Molecolar Weight: 150.09	Solubility in water: 139g/100ml (20°C)	Real specific weight: 1,76 g/mL
Melting point: 168-170°C	Solubility in water: 147g/100ml (25°C)	Apparent density: 0,6-1,3 g/mL
Equivalent weight: 75.05	Solubility in alcol: 33g/100ml (25°C)	pH (1.5 g/L in water): 2,2

Tartaric Acid is chemically very stable in air and not hygroscopic. We suggest to maintain the product well closed in its original packing, in a dry and cool place, avoiding exposures to extreme temperatures and to direct sun light to minimize the risk of caking. We also suggest to use the product within three years from the manufacturing date and to reduce the storage time to less than 12 months if the caking of the material could be a problem for the final user.

USES AND APPLICATIONS

Tartaric acid is used in many different applications due to its properties as an acidifier, flavor enhancer, antioxidant, stabilizer and sequestering agent. The different fields of application are:

Food:

Intermediate for the production of esters, used as emulsifiers.
Production of soft drinks.
Production of sweets, jams, candies, jellies, confectionery and biscuits.
Acidifier in wine production.

Pharmaceutical:

As an excipient for the preparation of powders, granulates and effervescent tablets.

Fine chemistry:

As a chiral agent in asimmetric synthesis and optical resolution.
In polishing and cleaning solutions for electronic and galvanoplastic industry, as dyeing and printing agent in textiles, as antioxidant for industrial fats.

Building industry:

In the cement industry, and particularly, in plaster and gypsum, tartaric acid is used for its retardant action that facilitates handling of these materials.

PACKAGING

We can offer many different packaging solutions to meet every customer request:

25Kg food grade polyethylene lined paper bags;
20 or 50Kg fiber drums with an internal polyethylene bag;
400-500-1000-1250Kg polipropylene big bags with an internal polyethylene bag.

Each packing has ICV seals and labels according to the customer needs; each pallet contains only one production batch. They are wrapped with a polyethylene film.

SAFETY

The long habit of usage in food, as well as recent scientific investigations, ensure for complete safety of this natural product in human consumption as recognized in food laws.
Natural tartaric acid is recognized as completely safe from FAO/WHO; it is a permitted food additive by EU laws (directive 96/77/EC and 2244/2002); Food & Drugs Administration classifies tartaric acid as GRAS (generally recognized as safe).

NATURAL L(+) TARTARIC ACID
SPECIFICATION

Description:	White or almost white christalline powder, or colurless crystalls.
Identification:	Gives the reactions of tartrates.
Melting point:	168-170°C
Solubility:	Very soluble in water, freely soluble in alcohol.
Appearance of solution:	Clear and not more intensely coloured than reference solution Y_6.
Assay (dry basis):	99.7-100.5%
Specific optical rotation:	+12.0-12.8°
Loss on drying:	not more than 0.2%
Sulphated ash:	not more than 0.05%
Sulphates:	less than 100ppm
Oxalates:	less than 100ppm
Calcium:	less than 80ppm
Chlorides:	less than 50ppm
Heavy metals (as Pb):	less than 10ppm
level of ^{14}C:	not less than 12.5 dpm/g of carbon
Lead:	less than 5ppm
Arsenic:	less than 1ppm
Mercury:	less than 1ppm

COMPLIANCE

Natural tartaric acid produced by ICV complies with the most important international requirements:

USP/NF (United States Pharmacopoeia / National Formulary)

FCC (Food Chemicals Codex)

Eur. Ph. (and related BP / DAB) (European Pharmacopoeia)

JP (Japanese Pharmacopoeia)

96/77/EC and 2244/2002 (European Union current law)

GRANULOMETRIC COMPOSITION

TYPE: GRANULAR - code **SA**

less than 5% w/w remains over a 900µm sieve
typically 50% w/w remains over a 630µm sieve
less than 5% w/w passes through a 550µm sieve

TYPE: FINE GRANULAR - code **S**

less than 5% w/w remains over a 550µm sieve
typically 50% w/w remains over a 425µm sieve
less than 5% w/w passes through a 250µm sieve

TYPE: CE GRANULAR - code **CE**

less than 10% w/w remains over a 420µm sieve
less than 70% w/w remains over a 250µm sieve
less than 10% w/w passes through a 150µm sieve

TYPE: VERY FINE GRANULAR - code **SS**

less than 1% w/w remains over a 355µm sieve
less than 15% w/w remains over a 250µm sieve
less than 5% w/w passes through a 125µm sieve

TYPE: STANDARD POWDER - code **SP** or **SPK** (if added with anticaking)

less than 5% w/w remains over a 200µm sieve
typically 50% w/w passes through a 90µm sieve

TYPE: FINE POWDER - code **QPK** (added with anticaking)

less than 20% w/w remains over a 125µm sieve
typically 50% w/w passes through a 40µm sieve

TYPE: VERY FINE POWDER code **FPK** (added with anticaking)

less than 5% w/w remains over a 63µm sieve
typically 90% w/w passes through a 40µm sieve

Other size grades are available upon request from the customer

INDUSTRIA CHIMICA VALENZANA I.C.V. S.p.A.

MATERIAL SAFETY DATA SHEET

Company name **INDUSTRIA CHIMICA VALENZANA I.C.V.**

Via Desman, 428

I-35010 S. Michele di Borgoricco (PD) – ITALY

Tel. ++39 49 5798053 Fax ++39 49 9335272

EMERGENCY TELEPHONE NUMBER **++39 49 5798053**

1. PRODUCT IDENTIFICATION

Commercial Name	**Natural Tartaric Acid**
Chemical Name	(2R,3R)-2,3-dihydroxybutanedioic acid
Synonyms	L (+) Tartaric acid / L (+) 2,3-dihydroxysuccinic acid
CAS Number	87-69-4
EINECS Number	201-766-0
RTECS Number	WW7875000

2. INFORMATIONS ABOUT INGREDIENTS

Chemical description	100% Natural-L(+)-tartaric acid
Hazardous ingredients	This product does not contain any hazardous ingredient.

3. HAZARD IDENTIFICATION

There are no known specific hazards for the human health and the physical integrity related to the common use of this product; particular conditions may cause acute effects:

by skin contact	causes irritation in contact with little excoriation or wounds or after prolonged contact
by inhalation	causes irritation of the mucous membranes and the upper respiratory tract
by ingestion	large quantities are irritating for the gastro-intestinal system and may cause nausea and vomiting.
by contact with eyes	causes irritation after even brief contact

4. FIRST AID MEASURES

Skin contact	wash with plenty of water and soap.
Ingestion	wash the mouth out with abundant fresh water; get medical advise if symptoms occur. Do not induce vomiting.
Inhalation	move the patient from the contaminated area to an area with clean and fresh air; get medical attention in case of breathing difficulties.
Eye contact	immediately flush eyes with plenty of water for at least 10' taking away contact lens. Get medical advise if irritation persists.

5. FIRE FIGHTING MEASURES

Extinguishing media	water spray, carbon dioxide, dry chemicals
Extinguishing media to be avoided	no one
Specific hazards	it is a combustible material, in case of fire develops carbon dioxide and water and may produce carbon monoxide.
Protective equipment	wear a breathing apparatus

6. ACCIDENTAL RELEASE MEASURES

Personal safety	use gloves and an aspirator
Environmental protection	do not contaminate soils, rivers and the sewers; in case of contamination warn the competent authority.
Removal methods	collect the spilt product in suitable containers for disposal. Wash the contaminated area with plenty of water. If the spilt product is a solution of tartaric acid use suitable adsorbent powder.

7. HANDLING AND STORAGE

Handling	avoid inhalation and contact with eyes using suitable aspirators
Storage conditions	keep in a tightly closed container, stored in a cool, dry and ventilated area. Storage for more than three years is not recommended. Keep away from strongly oxidizing substances and from bases.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure limits	no exposure limit has been estabilished for the product
Plant design precautions	maintain an efficient ventilation system in both storage and handling areas
Protection for respiration	use an aspirator when handling the product
Protection for hands	wear protective rubber gloves to avoid contact with little excoriation or wounds.
Protection for eyes	use goggles in presence of dust.

General health precautions: an eye wash fountain should be provided nearby.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	cristals or cristalline powder	Ignition point	425°C
Colour	white or transparent	Relative density	1,76g/mL
Odour	odourless	Apparent density	600-1300 g/L at 20°C
Molecular weight	150,09	Water solubility	139g in 100g at 20°C
Melting point	168-170°C	Solubility	very soluble in polar
Boiling point	210°C open vessel		solvents

10. STABILITY AND REACTIVITY

Stable under ordinary conditions of use and storage, it does not decompose with light and heating in the environmental temperature range.

Incompatibilities	strongly oxidizing substances
Hazardous reactions	may ignite in contact with strongly oxidizing substances; react with dithiocarbammates, inorganic fluorides, sulfides, cyanides and nitrites with production of toxic gases.

11. TOXICOLOGICAL INFORMATION

EFFECTS ON MAN

Irritating power mildly irritating to eyes and skin.

Acute toxicityit has local irritating action by contact without systemic effects.
It gives irritation, coughing and dyspnea by inhalation.
Mildly irritating for gastro-intestinal system, if large quantities are ingested may produce nausea, vomiting and diarrhea.

Chronic toxicity it has low chronic toxicity; it may cause dental corrosion and, occasionally, gastric ulcers.

EXPERIMENTAL DATA: Acute toxicity oral DLLO on rabbit = 5000 mg/Kg
oral DLLO on dog = 500 mg/Kg
LD_{50} endovenous on rat = 485 mg/Kg

12. ECOLOGICAL INFORMATION

This product may damage rivers modifying their pH and killing the aquatic organisms.

13. DISPOSAL

Waste the product and the contaminated containers in compliance with local, national and international law.

Incineration may be performed without any limitation.

Solution must be correctly treated before disposal.

Contaminated containers must be cleaned with plenty of water before disposal.

14. TRANSPORT INFORMATION

Road and railway transport	not classified (ADR/RID)
Maritime transport	not classified (IMO)
Air transport	not classified (IATA)

15. REGULATORY INFORMATION

Classification according to directive CEE 67/548 and following addendum:

This product is not dangerous.

Label Hazard	**Irritant**
Risk phrase	**Irritant for eyes, skin and respiratory apparatus**.
Security phrase	**In case of contact with eyes, wash immediately with plenty of water and get medical advise.** **Wear adequate protective devices.**

16. OTHER INFORMATION

The informations contained herein should be considered as a guide to the appropriate precautionary handling of the material based on our best knowledge. Individuals receiving these informations must excercise their independent judgement in determining its appropriateness and completeness for a particular purpose and handling the material by properly trained personnel.

Tartaric acid manufactured by Industria Chimica Valenzana ICV:

is not produced from any GM raw material or procedure, and appropiate measures have been taken to avoid any adventitious contamination; so the product is **GMO free** and has not to be labbeled according to the EU regulation 1829/2003;

does not contain, is not produced using, and does not come into contact with **any animal origin materials** at any stage of the manufacture;

is **free from** contamination with potentially **allergenic substances**, like nuts, milk and derivatives, gluten, soya, fish and derivatives;

is suitable for **vegetarians and vegans** consumptions.

Nutritional information

Total Fat content	0 g /100 g	Sodium	Not more than 3 mg/100g
Starch	0 g /100 g	Carbohydrates	0 g /100 g
Proteins	0 g /100 g	Saccharose	0 g /100 g
Fibers	0 g /100 g	Lactose	0 g /100 g
Organic Acids	100 g / 100 g	Alcohol	0 g / 100 g
Energy	183 Kcal / 100 g	Energy	768 Kj / 100 g

Industria Chimica Valenzana ICV S.p.A. is **ISO:9001** certified and operates under HACCP and GMP control; its production is also Kosher and Halal certified.

Edition 021.05-07QA

Certificate N. IT05/0658

The quality management system of

INDUSTRIA CHIMICA VALENZANA I.C.V. S.p.A.

Via Desman, 428 - 35010 SAN MICHELE DI BORGORICCO (PD) - Italy

has been assessed and certified as meeting the requirements of

ISO 9001 / UNI EN ISO 9001:2000

For the following activities

Production of natural L (+) tartaric acid.

EA Sector: 12

First Issue: 27/06/2005
Last Issue: 27/06/2005

Valid until 27/06/2008 subject to annual satisfactory surveillance.

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization.

SINCERT

SGQ N°016A
SGA N°0070
PRD N°018B

Membro di MLA EA per gli schemi di accreditamento SGQ, SGA, PRD e PRS e di MLA IAF per gli schemi di accreditamento SGQ, SGA, e PRD
Signatory of EA MLA for the accreditation schemes QMS, EMS, Product and Personnel and of IAF MLA for the accreditation schemes QMS, EMS and Product

Authorized By
Paolo Pineschi

SGS ITALIA S.p.A. - Systems & Services Certification
Via G. Gozzi, 1/A 20129 MILANO - Italy
t + 39 02 73 93 1 f +39 02 70 10 94 89 www.sgs.com

graphic design atelier roger pfund printed by orell füssli security printing ltd switzerland