COEI-1-SORACI Sorbic acid

Trans,trans-hexa-2-4-dienoic acid

CH3-CH=CH-CH=CH-COOH

$C_6H_8O_2$= 112.1

SIN NO. 200

1. Objective, origin and scope of application

This product falls under the category of antifungal preservatives (see potassium sorbate). Because it is not soluble in wine, it cannot be used as is, but rather in its potassium salt form. It may be soluble in some spirits.

Its use is subject to regulatory restrictions on content.

2. Labelling

The label should indicate the product's purity and its safety and storage conditions.

3. Solubility

Water at 20 °C	1.6 g/l
Water at 100 °C	38 g/l
Alcohol	55 g/l
Ethyl ether	104 g/kg

This acid can be entrained in steam. At 100 °C, the steam has a sorbic acid concentration equal to 59% of the concentration of the dilute, boiling solution.

The ethyl ether/water partition coefficient is 32.

4. Identifying Properties

4.1. Melting point: 134 ± 2 °C. Boiling point: 228 °C.

4.2. Stir 20 mg of sorbic acid with 1 ml of brominated water (R). The color should disappear.

4.3. A solution containing 4 mg of sorbic acid per liter of water containing 0.5 g of monosodium carbonate per liter has an absorption band of 256 nm.

5. Tests

5.1. Moisture

Not more than 0.5% of sorbic acid must be made up of water (Karl Fisher method).

5.2. Sulfuric Ash

The proportion of sulfuric ash is determined as indicated in the Annex. It should be less than 0.2 per 100.

5.3. Preparing the Solution for Tests

Shake 0.5 g of sorbic acid with 70 ml of boiling water. Let the solution cool. Filter and collect the filtrate in a 100 ml volumetric flask. Wash the first container and the precipitate and the filter several times with several ml of water until 100 ml of filtrate is obtained.

5.4. Sulfates

To 20 ml of solution prepared for tests under paragraph 5.3, add 1 ml hydrochloric acid diluted to 10 pp 100 (R) and 2 ml of barium chloride solution (R). The mixture should be clear, or the opalescence observed after 15 minutes should be less than that of the control solution prepared as indicated in the Annex. (Sulfate content expressed in terms of sulfuric acid should be less than 1 g/kg).

5.5. Chlorides

To 10 ml of solution prepared for tests under paragraph 5.3, add 5 ml of water, 5 ml of nitric acid diluted to 10 pp 100 (R) and 0.5 ml of 5 pp 100 silver nitrate solution (R). The mixture should be clear or the opalescence observed after 15 minutes should be less than that of the control solution prepared as indicated in the Annex. (Chloride content expressed in terms of hydrochloric acid should be less than 1 g/kg).

5.6. Heavy Metals

Take 10 ml of the solution prepared under paragraph 5.3. Add 2 ml of pH 3.5 (R) buffer solution, and 1.2 ml of thioacetamide reagent (R). Use the method described in the Annex. (Heavy metal content expressed in terms of lead should be less than 10 mg/kg).

5.7. Lead

Using the technique described in the Compendium, determine lead content in the test solution (5.3). (Lead content to be less than 2 mg/kg.)

5.8. Mercury

Using the technique described in the annex, determine mercury content in the test solution (5.3). (Content to be less than 1 mg/kg.)

5.9. Arsenic

Using the technique described in the annex, determine arsenic content in the test solution (5.3). (Content to be less than 3 mg/kg.)

5.10. Aldehydes

Prepare a saturate aqueous sorbic acid solution by agitating 1 g of sorbic acid with 35 ml of very hot water. Let cool in a corked flask. Filter and collect the filtrate in a 50 ml volumetric flask. Wash the flask, the precipitate and the filter several times with several ml of water until 50 ml of filtrate are obtained. Treat the solution with 0.5 ml of fuchsin solution bleached out with sulfuric acid (R). After 15 minutes, compare it to a control tube produced with 0.5 ml of the same reagent and 1 ml of formaldehyde in solution with 20 µg per ml. The resulting coloration should be less intense than that of the control. (Aldehyde content, expressed in terms of formaldehyde, should be less than 1 g/kg).

5.11. Quantitative Analyses

These analyses must be performed using sorbic acid which has previously been dried in a desiccation chamber with sulfuric acid for 24 hours.

1° Weigh a quantity p of sorbic acid of about 0.20 g and dissolve it in 10 ml of pure alcohol. Then dilute in 100 ml of water. Titrate the acidity using a 0.1M solution of sodium hydroxide in the presence of phenolphthalein solution (R). Let *n* be the amount in ml used: 1 ml of 0.1M sodium hydroxide solution corresponds to 0.0112 g of sorbic acid. Content in pp 100 of sorbic acid in the product tested:

$$1.12n/p$$

2° The same procedure should be performed after entrainment in steam. Place 10 ml of the alcoholic solution containing a quantity of p grams of sorbic acid (about 0.2 g) in the bubble chamber of a steam distillation machine. Add a crystal (about 0.5 g) of tartaric acid and distill at least 250 ml (until the steam no longer distills acid). Titrate the distilled acidity using a 0.1M sodium hydroxide solution.

Using these two analyses, the product tested should contain at least 98 pp 100 sorbic acid.

6. Storage

Sorbic acid should be stored in hermetically sealed, airtight containers.