COEI-1-POTSOR Potassium sorbate

Potassium-2,4-hexadienoate

Kalii sorbas

CH3-CH=CH-CH=CH-COOK

$C_6H_7O_2K$= 150.2

SIN No. 202

1. Objective, origin and scope of application

This product is used as a preservative. Potassium sorbate releases 74% sorbic acid, whose anti-fungal properties inhibit the spread of yeast. Its use is limited to 200 mg/l, expressed in the form of sorbic acid.

Sorbic acid is not a bactericide. It is metabolized by certain bacteria and has a characteristic "geranium" taste.

For this reason, its presence in wine does not make it possible to remove SO_2.

2. Labelling

The label should indicate the purity of the product, its sorbic acid content and its safety and storage conditions.

3. Centesemal composition

Sorbic acid	74.64
Potassium	26.03

4. Solubility

Water at 20 °C	highly soluble
Alcohol, 95% by vol.	moderately soluble (□14 g/l

Ethyl ether	insoluble

5. Identifying properties

5.1. White, water soluble powder or granules; the solution thereof is neutral when phenolphthalein (R) is added, and alkaline when adding methyl red (R).

5.2. Stir 20 mg potassium sorbate with 1 ml brominated water (R) and 1 drop of acetic acid (R). The color should disappear.

5.3. A solution containing 5 mg potassium sorbate per liter of water has an absorption band of 256 nm.

5.4. A aqueous solution (concentration: 10 pp 100) precipitates using acids and exhibits the characteristics of potassium.

6. Tests

6.1. Solubility

Verify complete solubility in water and in alcohol.

6.2. Desiccation Loss

1 g potassium sorbate in an oven set at 105 °C should not lose more than 1/100 of its weight in 3 hours.

6.3. Preparing the Solution for Tests

Dissolve 1 g of potassium sorbate in 40 ml of water in a 50 ml volumetric flask. Add 0.5 ml concentrated nitric acid (R). Fill to the gauge line with water and filter.

6.4. Chlorides

Add 0.5 ml of nitric acid diluted to 10 pp 100 (R), 17 ml of water and 0.5 ml of 5 pp 100 silver nitrate (R) to 2.5 ml of the test solution as prepared under Paragraph 4. The resulting opalescence should be less than that of a control prepared as indicated in the Annex. (Chloride content, expressed in terms of hydrochloric acid, should be less than 1 g/kg).

6.5. Sulfates

Add 1 ml of diluted hydrochloric acid diluted to 10 pp 100 (R), 14 ml of water and 2 ml of barium chloride solution (R) to 5 ml of the test solution as prepared under paragraph 6.4. The mixture should be clear; or else, the opalescence observed after 15 minutes should be less than that of a control prepared as indicated in the Annex. (Sulfate content, expressed in terms of sulfuric acid, should be less than 1 g/kg).

6.6. Heavy Metals

Dissolve 1 g of potassium sorbate in 15 ml of water. Add 2 ml of pH 3.5 buffer solution

(R) and 1.2 ml of thioacetamide reagent (R). The mixture should remain colorless, or less intensely colored than a solution containing 1 g of the same potassium sorbate in 15 ml of water. If there is an increase in color, it should be equal to that of the control containing 20 µg of lead. For this comparison, use the same system described for sorbic acid. (Heavy metal content, expressed in terms of lead, should be less than 10 mg/kg).

6.7. Lead

Using the technique described in the Compendium, determine lead content in the test solution (6.3). (Lead content should be less than 5 mg/kg).

6.8. Mercury

Implementing the technique detailed in the Annex, determine mercury content in the test solution (6.3). Content should be less than 1 mg/kg.

6.9. Arsenic

Implementing the technique detailed in the Annex, determine the arsenic content in the test solution (6.3). Content should be less than 3 mg/kg.

6.10. Aldehyde Determination

Add 05 ml nitric acid diluted to 10 pp 100 (R) and 14 ml water to 2.5 ml of the test solution (6.3). Add 0.5 ml fuchsin solution bleached using sulfuric acid (R) to 1 ml of this solution and, after 15 minutes, compare to a control tube obtained using 0.5 ml of the same reagent and 1 ml formaldehyde in solution in a concentration of 20 µg per milliliter. The color should be less intense than that of the control. (Aldehyde content, expressed in the form of formaldehyde, should be less than 1 g/kg.).

6.11. Quantitative Analysis

This analysis should be performed using product to be analyzed that has been previously dried in a desiccator with sulfuric acid for 24 hours.

Add a weight, p (in g) of dried product of about 0.2 g to the wash bottle of a steam distillation device, along with 1 g of tartaric acid and 10 ml of water. Distill at least 250 ml (until the steam does not entrain any more acid). Titrate the distilled acidity with 0.1M sodium hydroxide solution; Let n be the number of ml used. 1 ml 0.1M sodium hydroxide corresponds to 0.01502 g potassium sorbate.

Potassium sorbate content in percent of the product tested:

$$1.502 n / p$$

Titration of the potassium sorbate analyzed should give at least 98 pp 100 for the dried product.

7. Storage

Potassium sorbate should be stored in an airtight container away from light to retard oxidation.