## COEI-1-POTSOR Potassium sorbate

## Potassium-2,4-hexadienoate

## Kalii sorbas

## CH3-CH=CH-CH=CH-COOK

$\mathrm{C}_{6} \mathrm{H}_{7} \mathrm{O}_{2} \mathrm{~K}=\mathbf{1 5 0 . 2}$

## 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 $200 \mathrm{mg} / \mathrm{l}$, 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 $\mathrm{SO}_{2}$.

## 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 $20^{\circ} \mathrm{C}$ highly solubleAlcohol, 95\% by vol.moderately soluble ( $\mathrm{\square} 14 \mathrm{~g} / \mathrm{l}$

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## Potassium sorbate

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 $(\mathrm{R})$ 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 $105^{\circ} \mathrm{C}$ 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 $10 \mathrm{pp} 100(\mathrm{R}), 17 \mathrm{ml}$ of water and 0.5 ml of 5 pp 100 silver nitrate $(\mathrm{R})$ 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 $1 \mathrm{~g} / \mathrm{kg}$ ).
6.5. Sulfates

Add 1 ml of diluted hydrochloric acid diluted to $10 \mathrm{pp} 100(\mathrm{R}), 14 \mathrm{ml}$ 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 $1 \mathrm{~g} / \mathrm{kg}$ ).

### 6.6. Heavy Metals

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

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$(\mathrm{R})$ and 1.2 ml of thioacetamide reagent $(\mathrm{R})$. 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 $20 \mu \mathrm{~g}$ 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 $\mathrm{mg} / \mathrm{kg}$ ).

### 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 $5 \mathrm{mg} / \mathrm{kg}$ ).

### 6.8. Mercury

Implementing the technique detailed in the Annex, determine mercury content in the test solution (6.3). Content should be less than $1 \mathrm{mg} / \mathrm{kg}$.
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 $3 \mathrm{mg} / \mathrm{kg}$.

### 6.10. Aldehyde Determination

Add 05 ml nitric acid diluted to $10 \mathrm{pp} 100(\mathrm{R})$ 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 $20 \mu \mathrm{~g}$ 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 $1 \mathrm{~g} / \mathrm{kg}$.).
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 0.1 M sodium hydroxide solution; Let n be the number of ml used. 1 ml 0.1 M sodium hydroxide corresponds to 0.01502 g potassium sorbate.
Potassium sorbate content in percent of the product tested:

## $1.502 \mathrm{n} / \mathrm{p}$

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

## 7. Storage

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## Potassium sorbate

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

