POTASSIUM ANHYDROUS SULFITE
Potassium pyrosulfite
Potassium disulfite
Potassium metabisulfite
Kalii metabisulfis
$K_2S_2O_5$ = 222.3
SIN No. 224
(Oeno 34/2000)

1. OBJECTIVE, ORIGIN AND SCOPE OF APPLICATION

Potassium anhydrous sulfite, commonly called potassium metabisulfite, is used because of the sulfur dioxide it makes available. Potassium metabisulfite, which is sold in powdered form, contains 52-55% by weight SO_2.

There are regulatory limits restricting the sulfur dioxide content of wines.

2. LABELING

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

3. CENTESIMAL COMPOSITION

Sulfur dioxide	57.63
Potassium	35.17

4. SOLUBILITY

Water at 20 °C	454.5 g/l
Alcohol, 95% by vol.	insoluble

5. IDENTIFYING PROPERTIES

5.1. 5 ml of aqueous 10 pp 100 (m/v) solution treated with 5 ml of 1/10 diluted sulfuric acid (R) releases sulfur dioxide and reduces iodine and potassium permanganate.

5.2. The 10 pp 100 (m/v) aqueous solution is acidic as indicated by methyl red (R) of (pHapproximately 5).

5.3. The 1 pp 100 (m/v) aqueous solution produces potassium-based reactions.

6. TESTS

6.1. Preparing the Test Solution in a Concentration of 10 pp 100

Prepare a solution in a concentration of 10 pp 1000 (m/v).

6.2. Preparing a Test Solution in a Concentration of 1 pp 100

Prepare a 1 pp 100 (m/v) solution by diluting the previous solution (6.1) to 1/10.

6.3. Lead

Using the technique described in the Compendium, determine the lead content in the 10 pp 100 test solution (6.1). (Lead content should be less than 5 mg/kg.)

6.4. Mercury

Using the technique described in the annex, determine the mercury content in the 10 pp 100 test solution (6.1). (Content should be less than 1 mg/kg.)

6.5. Arsenic

Using the technique described in the annex, determine the arsenic content in the 10 pp 100 test solution (6.1). (Content should be less than 3 mg/kg.)

6.6. Selenium

Weigh 2.60 g potassium anhydrous sulfite, a quantity which contains 1.5 g sulfur dioxide. Dissolve it under heat in 7 ml of distilled water and 2 ml of concentrated hydrochloric acid (R). Let cool, then add 3 ml of formaldehyde solution (R). Let sit for 10 minutes. Place the tube in a 100 °C water bath and add 50 mg of pulverized potassium anhydrous sulfite which is free of selenium (R). Leave the tube in the 100 °C water bath for 15 minutes. If a pink coloration develops, it should be less intense than that of a control prepared in the same way using 2.60 g of selenium-free potassium anhydrous sulfite (R) to which was added 0.45 ml of a selenium dioxide solution in a concentration of 100 mg of selenium per liter (R). (Selenium content, with respect to the sulfur dioxide, should be less than 10 mg/kg).

6.7. Sodium

Prepare 10 ml of a 1 pp 100 (m/v) solution as indicated in paragraph 6.2 with 2 ml of acetic acid (R). Evaporate the solution in a 100 °C water bath until it is reduced to 1/2.

Pour into a 100 ml volumetric flask. Fill with water to the gauge line. Quantitatively analyze the sodium using flame photometry. (Sodium content should be less than 2 pp 100).

6.8. Chlorides

Place 0.5 ml (concentration: 10 pp 100) of solution as prepared under paragraph 6.1 in a dish with 10 ml of water and 3 ml of 10 pp 100 sulfuric acid solution (R). Evaporate in a 100 °C water bath to reduce the volume to 5 ml. Decant in a test tube. Bring the volume up to 15 ml, then add 5 ml of 10 pp 100 nitric acid (R) and 0.5 ml of 5 pp 100 silver nitrate solution (R). The liquid should remain clear ; or else, any clouding which occurs should be less intense than that in a control prepared as indicated in the Annex. (Chloride content, expressed in terms of hydrochloric acid, should be less than 1 g/kg).

6.9. Iron

Using the technique described in the Compendium, determine lthe iron content in the 10 pp 100 (m/v) test solution (6.1) using atomic absorption spectrophotometry. (Iron content should be less than 50 mg/kg SO_2.)

7. QUANTITATIVE ANALYSIS

Sulfur dioxide - Place 50 ml of a disodium ethylene diamine tetra-acetate solution (120 mg per liter) in a 200 ml conical flask. Add 10 ml of the freshly prepared 1 pp 100 potassium anhydrous sulfite solution and titrate with 0.05M iodine. Let n be the volume in ml ; 1 ml of 0.05M iodine corresponds to 3.2 mg of sulfur dioxide.

Sulfur dioxide content per 100 g: 3.2n

Potassium anhydrous sulfite should contain at least **51.8 pp 100** sulfur dioxide.

8. STORAGE

This product reacts with air and should be kept in hermetically sealed containers.