Appearance of solution. The solution is clear (*2.2.1*) and colourless (*2.2.2, Method II*).

Dissolve 0.20 g in *water R* and dilute to 20 ml with the same solvent.

Acidity or alkalinity. To 5 ml of solution S add 5 ml of *water R* and 0.1 ml of *phenolphthalein solution R*. Not more than 0.25 ml of *0.01 M sodium hydroxide* is required to change the colour of the indicator. To 5 ml of solution S, add 5 ml of *water R* and 0.1 ml of *bromocresol green solution R*. Not more than 0.25 ml of *0.01 M hydrochloric acid* is required to change the colour of the indicator.

Chlorates and chlorides (*2.4.4*): maximum 100 ppm (calculated as chlorides).

To 5 ml of solution S, add 5 ml of *water R* and heat to boiling. Add 1 ml of *nitric acid R* and 0.1 g of *sodium nitrite R*. Allow to cool to room temperature. Dilute to 15 ml with *water R*. The solution complies with the limit test for chlorides. Prepare the standard using 5 ml of *chloride standard solution (5 ppm Cl) R* and 10 ml of *water R*, and adding only 1 ml of *dilute nitric acid R*.

Sulphates (*2.4.13*): maximum 100 ppm.

15 ml of solution S complies with the limit test for sulphates. Prepare the standard using a mixture of 7.5 ml of *sulphate standard solution (10 ppm SO_4) R* and 7.5 ml of *water R*.

Calcium (*2.4.3*): maximum 100 ppm.

15 ml of solution S complies with the limit test for calcium. Prepare the standard using a mixture of 7.5 ml of *calcium standard solution (10 ppm Ca) R*, 1 ml of *dilute acetic acid R* and 7.5 ml of *distilled water R*.

Heavy metals (*2.4.8*): maximum 20 ppm.

12 ml of solution S complies with limit test A. Prepare the standard using *lead standard solution (1 ppm Pb) R*.

ASSAY

Prepare a chromatography column 0.3 m long and 10 mm in internal diameter and filled with 10 g of *strongly acidic ion-exchange resin R* covered with *carbon dioxide-free water R*. Maintain a 1 cm layer of liquid above the resin throughout the determination. Allow 100 ml of *dilute hydrochloric acid R* to run through the column at a flow rate of about 5 ml/min. Wash the column (with the tap completely open) with *carbon dioxide-free water R* until the eluate is neutral to *blue litmus paper R*. Dissolve 0.100 g of the substance to be examined in 10 ml of *carbon dioxide-free water R* in a beaker and transfer it to the column reservoir, allow the solution to run through the column at a flow rate of about 3 ml/min and collect the eluate. Wash the beaker 3 times with 10 ml of *carbon dioxide-free water R* and transfer this solution at the same flow rate to the column before it runs dry. Finally, wash the column with 200 ml of *carbon dioxide-free water R* (with the tap completely open) until the eluate is neutral to *blue litmus paper R*. Titrate the combined eluate and washings with *0.1 M sodium hydroxide*, using 1 ml of *phenolphthalein solution R* as indicator.

1 ml of *0.1 M sodium hydroxide* is equivalent to 13.86 mg of $KClO_4$.

01/2008:0121

POTASSIUM PERMANGANATE

Kalii permanganas

$KMnO_4$ M_r 158.0
[7722-64-7]

DEFINITION

Content: 99.0 per cent to 100.5 per cent.

CHARACTERS

Appearance: dark purple or brownish-black, granular powder or dark purple or almost black crystals, usually having a metallic lustre.

Solubility: soluble in cold water, freely soluble in boiling water.

It decomposes on contact with certain organic substances.

IDENTIFICATION

A. Dissolve about 50 mg in 5 ml of *water R* and add 1 ml of *ethanol (96 per cent) R* and 0.3 ml of *dilute sodium hydroxide solution R*. A green colour develops. Heat to boiling. A dark brown precipitate is formed.

B. Filter the mixture obtained in identification test A. The filtrate gives reaction (b) of potassium (*2.3.1*).

TESTS

Solution S. Dissolve 0.75 g in 25 ml of *distilled water R*, add 3 ml of *ethanol (96 per cent) R* and boil for 2-3 min. Cool, dilute to 30 ml with *distilled water R* and filter.

Appearance of solution. Solution S is colourless (*2.2.2, Method II*).

Substances insoluble in water: maximum 1.0 per cent.

Dissolve 0.5 g in 50 ml of *water R* and heat to boiling. Filter through a tared sintered-glass filter (16) (*2.1.2*). Wash with *water R* until the filtrate is colourless and collect the residue on the filter. The residue, dried in an oven at 100-105 °C, weighs a maximum of 5 mg.

Chlorides (*2.4.4*): maximum 200 ppm.

Dilute 10 ml of solution S to 15 ml with *water R*.

Sulphates (*2.4.13*): maximum 500 ppm.

Dilute 12 ml of solution S to 15 ml with *distilled water R*.

ASSAY

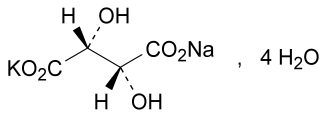
Dissolve 0.300 g in *water R* and dilute to 100.0 ml with the same solvent. To 20.0 ml of the solution add 20 ml of *water R*, 1 g of *potassium iodide R* and 10 ml of *dilute hydrochloric acid R*. Titrate the liberated iodine with *0.1 M sodium thiosulphate*, using 1 ml of *starch solution R* as indicator.

1 ml of *0.1 M sodium thiosulphate* is equivalent to 3.160 mg of $KMnO_4$.

01/2008:1986
corrected 6.0

POTASSIUM SODIUM TARTRATE TETRAHYDRATE

Kalii natrii tartras tetrahydricus



$C_4H_4KNaO_6,4H_2O$ M_r 282.2
[6381-59-5]

DEFINITION

Potassium sodium (+)-(2*R*,3*R*)-2,3-dihydroxybutanedioate tetrahydrate.