

Iodides. To 5 ml of solution S add 0.15 ml of *ferric chloride solution R1* and 2 ml of *methylene chloride R*. Shake and allow to separate. The lower layer is colourless (2.2.2, *Method I*).

Sulphates (2.4.13): maximum 100 ppm.

15 ml of solution S complies with the limit test for sulphates.

Iron (2.4.9): maximum 20 ppm.

5 ml of solution S diluted to 10 ml with *water R* complies with the limit test for iron.

Magnesium and alkaline-earth metals (2.4.7): maximum 200 ppm, calculated as Ca.

10.0 g complies with the limit test for magnesium and alkaline-earth metals. The volume of 0.01 M *sodium edetate* used does not exceed 5.0 ml.

Heavy metals (2.4.8): maximum 10 ppm.

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

Loss on drying (2.2.32): maximum 1.0 per cent, determined on 1.000 g by drying in an oven at 105 °C for 3 h.

ASSAY

Dissolve 2.000 g in *water R* and dilute to 100.0 ml with the same solvent. To 10.0 ml of the solution add 50 ml of *water R*, 5 ml of *dilute nitric acid R*, 25.0 ml of 0.1 M *silver nitrate* and 2 ml of *dibutyl phthalate R*. Shake. Titrate with 0.1 M *ammonium thiocyanate*, using 2 ml of *ferric ammonium sulphate solution R2* as indicator and shaking vigorously towards the end-point.

1 ml of 0.1 M *silver nitrate* is equivalent to 11.90 mg of KBr. Calculate the percentage content of KBr from the expression:

$$a - 3.357 b$$

a = percentage content of KBr and KCl obtained in the assay and calculated as KBr,

b = percentage content of Cl in the test for chlorides.

TESTS

Solution S. Dissolve 10.0 g in 25 ml of *distilled water R*. Slowly add 14 ml of *hydrochloric acid R*. When the effervescence has ceased, boil for a few minutes. Allow to cool and dilute to 50 ml with *distilled water R*.

Appearance of solution. Solution S is not more opalescent than reference suspension II (2.2.1) and not more intensely coloured than reference solution Y₆ (2.2.2, *Method II*).

Chlorides (2.4.4): maximum 100 ppm.

Dissolve 0.50 g in 10 ml of *water R*. Carefully add dropwise 1 ml of *nitric acid R*. Boil. Cool, add 5 ml of *dilute nitric acid R* and dilute to 15 ml with *water R*.

Sulphates (2.4.13): maximum 100 ppm.

Dilute 7.50 ml of solution S to 15 ml with *distilled water R*.

Calcium (2.4.3): maximum 100 ppm.

To 5 ml of solution S add 1 ml of *concentrated ammonia R*. Boil. Cool. Dilute to 15 ml with *distilled water R*.

Iron (2.4.9): maximum 10 ppm.

Dilute 5 ml of solution S to 10 ml with *water R*.

Heavy metals (2.4.8): maximum 20 ppm.

Dilute 10 ml of solution S to 20 ml with *water R*. 12 ml of the solution complies with test A. Prepare the reference solution using *lead standard solution (2 ppm Pb) R*.

Loss on drying (2.2.32): maximum 5.0 per cent, determined on 0.300 g by drying in an oven at 120-125 °C for 5 h.

ASSAY

Dissolve 0.500 g in 50 ml of *carbon dioxide-free water R*. Carry out a potentiometric titration (2.2.20), using 1 M *hydrochloric acid*. Read the volume added at the 2nd point of inflexion.

1 ml of 1 M *hydrochloric acid* is equivalent to 69.1 mg of K₂CO₃.

STORAGE

In an airtight container.

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corrected 6.0

POTASSIUM CARBONATE

Kalii carbonas

K₂CO₃ *M_r* 138.2
[584-08-7]

DEFINITION

Content: 99.0 per cent to 101.0 per cent (dried substance).

CHARACTERS

Appearance: white or almost white granular powder, hygroscopic.

Solubility: freely soluble in water, practically insoluble in ethanol (96 per cent).

IDENTIFICATION

- Dissolve 1 g in 10 ml of *water R*. The solution is strongly alkaline (2.2.4).
- 2 ml of the solution prepared for identification test A gives the reaction of carbonates and bicarbonates (2.3.1).
- 1 ml of the solution prepared for identification test A gives reaction (b) of potassium (2.3.1).

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POTASSIUM CHLORIDE

Kalii chloridum

KCl *M_r* 74.6
[7447-40-7]

DEFINITION

Content: 99.0 per cent to 100.5 per cent of KCl (dried substance).

CHARACTERS

Appearance: white or almost white, crystalline powder or colourless crystals.

Solubility: freely soluble in water, practically insoluble in anhydrous ethanol.

IDENTIFICATION

- It gives the reactions of chlorides (2.3.1).
- Solution S (see Tests) gives the reactions of potassium (2.3.1).