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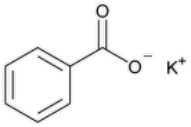
Potassium Benzoate



$C_7H_5KO_2$ 160.21

Benzoic acid, potassium salt;

Potassium benzoate CAS RN®: 582-25-2.

DEFINITION

Potassium Benzoate contains NLT 99.0% and NMT 101.0% of potassium benzoate ($C_7H_5KO_2$), calculated on the anhydrous basis.

IDENTIFICATION

Change to read:

• **A.** ▲**Spectroscopic Identification Tests ⟨197⟩, *Infrared Spectroscopy*: 197K**▲ (CN 1-May-2020)

Sample: Undried sample

Acceptance criteria: Meets the requirements

• **B.** Potassium Benzoate imparts a violet color to a nonluminous flame. Because the presence of small quantities of sodium masks the color, screen out the yellow color produced by sodium by viewing through a blue filter that blocks emission at 589 nm (sodium) but is transparent to emission at 404 nm (potassium). [Note—Traditionally, cobalt glass has been used, but other suitable filters are commercially available.]

• **C.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.

ASSAY

• **Procedure**

Solution A: Adjust a 20 mM solution of monobasic potassium phosphate with phosphoric acid to a pH of 2.5.

Mobile phase: *Solution A* and acetonitrile (70:30)

Diluent: Water and acetonitrile (50:50)

System suitability solution: 0.1 mg/mL of USP Salicylic Acid RS and 0.1 mg/mL of USP Benzoic Acid RS in *Diluent*

Standard solution: 0.1 mg/mL of USP Benzoic Acid RS in *Diluent*

Sample solution: 0.1 mg/mL of Potassium Benzoate in *Diluent*

Chromatographic system

(See *Chromatography ⟨621⟩, System Suitability*.)

Mode: LC

Detector: UV 230 nm

Column: 4.6-mm × 15-cm; 5-µm packing L1

Column temperature: 25°

Flow rate: 1.0 mL/min

Injection volume: 10 µL

System suitability

Samples: *System suitability solution* and *Standard solution*

[Note—The relative retention times for benzoic acid and salicylic acid are approximately 1 and 1.2, respectively.]

Suitability requirements

Resolution: NLT 3.0 between benzoic acid and salicylic acid, *System suitability solution*

Tailing factor: NMT 2.0 for benzoic acid, *Standard solution*

Relative standard deviation: NMT 0.5% for benzoic acid, *Standard solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of potassium benzoate ($C_7H_5KO_2$) in the portion of Potassium Benzoate taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times (M_{r1}/M_{r2}) \times 100$$

r_U = peak area of benzoic acid from the *Sample solution*

r_S = peak area of benzoic acid from the *Standard solution*

C_S = concentration of USP Benzoic Acid RS in the *Standard solution*, corrected for purity (mg/mL)

C_U = concentration of Potassium Benzoate in the *Sample solution* (mg/mL)

M_{r1} = molecular weight of potassium benzoate, 160.21

M_{r2} = molecular weight of benzoic acid, 122.12

Acceptance criteria: 99.0%–101.0% on the anhydrous basis

SPECIFIC TESTS

- **Alkalinity**

  Sample: 2 g

  Analysis: Dissolve the *Sample* in 20 mL of hot water, and add 2 drops of phenolphthalein TS.

  Acceptance criteria: If a pink color is produced, it is discharged by the addition of 0.20 mL of 0.10 N sulfuric acid.

- **Water Determination ⟨921⟩, *Method I*:** NMT 1.5%

ADDITIONAL REQUIREMENTS

- **Packaging and Storage:** Preserve in well-closed containers.

- **USP Reference Standards ⟨11⟩**

  USP Benzoic Acid RS

  USP Potassium Benzoate RS

  USP Salicylic Acid RS

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
POTASSIUM BENZOATE	Documentary Standards Support	SE2020 Simple Excipients
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SE2020 Simple Excipients

Chromatographic Database Information: Chromatographic Database

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