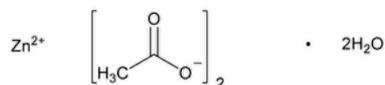


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Zinc Acetate



$\text{C}_4\text{H}_6\text{O}_4\text{Zn} \cdot 2\text{H}_2\text{O}$ 219.50

$\text{C}_4\text{H}_6\text{O}_4\text{Zn}$ 183.47

Acetic acid, zinc salt, dihydrate;

Zinc acetate dihydrate CAS RN[®]: 5970-45-6; UNII: FM5526K07A.

Zinc acetate anhydrous CAS RN[®]: 557-34-6; UNII: H2ZEY72PME.

DEFINITION

Zinc Acetate contains NLT 98.0% and NMT 102.0% of zinc acetate dihydrate ($\text{C}_4\text{H}_6\text{O}_4\text{Zn} \cdot 2\text{H}_2\text{O}$).

IDENTIFICATION

- **A.** The retention time of the zinc peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay.
- **B.** [IDENTIFICATION TESTS—GENERAL \(191\)](#), [Chemical Identification Tests, Acetate](#)

Sample solution: 50 mg/mL

Acceptance criteria: Meets the requirements

ASSAY

Change to read:

• PROCEDURE

Diluent, Mobile phase, ▲ and ▲ (IRA 1-Jun-2024) Post-column derivatization reagent▲ (IRA 1-Jun-2024) : Proceed as directed in [Zinc Determination \(591\), Procedure, Ion Chromatographic Method](#).

Standard solution: 50 µg/mL of [USP Zinc Acetate RS](#) in *Diluent* prepared as follows. Transfer an appropriate portion of homogenized [USP Zinc Acetate RS](#) to a suitable volumetric flask. Add *Diluent* to about 50% of the final flask volume to dissolve. Sonication may be needed to aid dissolution. Dilute with *Diluent* to volume.

Sample solution: 50 µg/mL of Zinc Acetate in *Diluent*, prepared as directed in the *Standard solution*

Chromatographic system: Proceed as directed in [Zinc Determination \(591\), Procedure, Ion Chromatographic Method](#) except for the *Columns*.

Columns

Guard: 4.0-mm × 5-cm; 9-µm packing [L100](#), or 4.0-mm × 0.5-cm; 4.6-µm packing [L91](#)

Analytical: 4.0-mm × 25-cm; 9-µm packing [L100](#), or 4.0-mm × 25-cm; 4.6-µm packing [L91](#)

▲System suitability

Sample: *Standard solution*

Suitability requirements

Tailing factor: NMT 2.0

Relative standard deviation: NMT 0.73%▲ (IRA 1-Jun-2024)

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of zinc acetate dihydrate ($\text{C}_4\text{H}_6\text{O}_4\text{Zn} \cdot 2\text{H}_2\text{O}$) in the portion of Zinc Acetate taken:

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

r_U = peak response of zinc from the *Sample solution*

r_S = peak response of zinc from the *Standard solution*

C_S = concentration of [USP Zinc Acetate RS](#) in the *Standard solution* (µg/mL)

C_U = concentration of Zinc Acetate in the *Sample solution* (µg/mL)

Acceptance criteria: 98.0%–102.0%

IMPURITIES

• [CHLORIDE AND SULFATE \(221\), Chloride](#)

Sample: 1.5 g

Acceptance criteria: The *Sample* shows no more chloride than corresponds to 0.10 mL of 0.020 N [hydrochloric acid](#) (0.005%).

• [CHLORIDE AND SULFATE \(221\), Sulfate](#)

Sample: 1.0 g

Acceptance criteria: The *Sample* shows no more sulfate than corresponds to 0.10 mL of 0.020 N [sulfuric acid](#) (0.010%).

• [ARSENIC \(211\), Procedures, Procedure 1 and Procedure 2, Procedure 1: Colorimetry:](#) NMT 3 ppm

Change to read:

• [LEAD \(251\), Procedures, Procedure 1: Chemical Method](#)

Standard solution: 20 mL of 0.5 µg/mL of lead in 1% (v/v) [nitric acid](#)

Sample solution: Dissolve 0.5 g of Zinc Acetate in 1 mL of 50% (v/v) [nitric acid](#) in a separator. Add 3 mL of *Ammonium citrate solution* and 0.5 mL of *Hydroxylamine hydrochloride solution*, and render alkaline with [ammonium hydroxide](#) to [phenol red TS](#). Add 10 mL of *Potassium cyanide solution*, and immediately extract the solution with successive 5-mL portions of *Dithizone extraction solution*, draining off each extract into another separator, until the last portion of the *Dithizone extraction solution* retains its green color. Shake the combined extracts for 30 s with 20 mL of 1% (v/v) [nitric acid](#), and discard the chloroform layer.

Analysis: To the *Standard solution* and *Sample solution*, add 4 mL of ▲*Ammonium cyanide solution* ▲ (IRA 1-Jun-2024) and 2 drops of *Hydroxylamine hydrochloride solution*. Add 10.0 mL of *Standard dithizone solution*, and shake the mixture for 30 s. Pass the chloroform layer through acid-washed filter paper into a color-comparison tube. Compare the color of the *Sample solution* with that of the *Standard solution*.

Acceptance criteria: The color of the *Sample solution* does not exceed the color of the *Standard solution* (0.002%).

• **ALKALIES AND ALKALINE EARTHS**

Sample solution: Dissolve 2.0 g in 150 mL of [water](#) in a 200-mL volumetric flask. Add sufficient [ammonium sulfide TS](#) to precipitate the zinc completely, and dilute with [water](#) to volume. Pass through a dry filter, rejecting the first portion of the filtrate.

Analysis: To 100 mL of the filtrate add 5 drops of [sulfuric acid](#). Evaporate to dryness, and ignite.

Acceptance criteria: The weight of the residue does not exceed 2 mg (0.2%).

SPECIFIC TESTS

• **INSOLUBLE MATTER**

Sample: 20 g

Analysis: Dissolve the *Sample* in 150 mL of [water](#) containing 1 mL of [glacial acetic acid](#). Filter any undissolved residue, wash with [water](#), and dry at 105°.

Acceptance criteria: NMT 1.0 mg of insoluble matter (0.005%)

• [pH \(791\)](#)

Sample solution: 50 mg/mL

Acceptance criteria: 6.0–8.0

ADDITIONAL REQUIREMENTS

• **PACKAGING AND STORAGE:** Preserve in tight containers.

• [USP REFERENCE STANDARDS \(11\)](#)

[USP Zinc Acetate RS](#)

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
ZINC ACETATE	Documentary Standards Support	SM22020 Small Molecules 2
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM22020 Small Molecules 2

Chromatographic Database Information: [Chromatographic Database](#)

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