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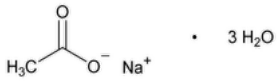
Sodium Acetate



$C_2H_3NaO_2 \cdot 3H_2O$ 136.08
$C_2H_3NaO_2$ 82.03

Acetic acid, sodium salt, trihydrate;

Sodium acetate trihydrate CAS RN®: 6131-90-4.

Anhydrous CAS RN®: 127-09-3.

DEFINITION

Sodium Acetate contains three molecules of water of hydration, or is anhydrous. It contains NLT 99.0% and NMT 101.0% of sodium acetate ($C_2H_3NaO_2$), calculated on the dried basis.

IDENTIFICATION

- **A. Identification Tests—General ⟨191⟩, *Chemical Identification Tests, Sodium*:** Meets the requirements
- **B. Identification Tests—General ⟨191⟩, *Acetate***

Sample solution : 10 mg/mL of Sodium Acetate in water. Adjust with 0.1 N sodium hydroxide VS to a slightly alkaline pH.

Acceptance criteria: Meets the requirements in test *A*

ASSAY

- **Procedure**

Sample solution: Equivalent to 200 mg of anhydrous Sodium Acetate in 50 mL of glacial acetic acid. Heat gently on a steam bath for about 5 min to dissolve. Cover the solution and stir while cooling.

Blank: 50 mL of glacial acetic acid

Titrimetric system

(See *Titrimetry* ⟨541⟩.)

Mode: Direct titration

Titrant: 0.1 N perchloric acid VS

Endpoint detection: Potentiometric

Analysis: Titrate the *Sample solution* with *Titrant*. Perform a blank determination, and make any necessary correction.

Calculate the percentage of sodium acetate ($C_2H_3NaO_2$) in the portion of Sodium Acetate taken:

$$\text{Result} = [(V_S - V_B) \times N_A \times F \times 100]/W$$

V_S = *Titrant* volume consumed by the *Sample solution* (mL)

V_B = *Titrant* volume consumed by the *Blank* (mL)

N_A = actual normality of the *Titrant* (mEq/mL)

F = equivalency factor, 82.03 mg/mEq

W = equivalent weight of anhydrous Sodium Acetate in the *Sample solution* (mg)

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

IMPURITIES

- **Chloride and Sulfate ⟨221⟩, *Chloride***

Sample: Equivalent to 1.0 g of anhydrous Sodium Acetate

Acceptance criteria: Shows no more chloride than corresponds to 0.50 mL of 0.020 N hydrochloric acid VS (350 ppm).

- **Chloride and Sulfate ⟨221⟩, *Sulfate***

Sample: Equivalent to 10 g of anhydrous Sodium Acetate

Acceptance criteria: Shows no more sulfate than corresponds to 0.50 mL of 0.020 N sulfuric acid VS (50 ppm).

- **Calcium and Magnesium**

Sample solution: Equivalent to 10 mg/mL of anhydrous Sodium Acetate

Analysis: To 20 mL of *Sample solution*, add 2 mL each of 6 N ammonium hydroxide, ammonium oxalate TS, and dibasic sodium phosphate TS.

Acceptance criteria: No turbidity is produced within 5 min.

• **Potassium**

Sample solution: Dissolve the equivalent of 3 g of anhydrous Sodium Acetate in 5 mL of water.

Analysis: To the *Sample solution*, add 1 N acetic acid dropwise until the solution is slightly acidic, and then add 5 drops of sodium cobaltinitrite TS.

Acceptance criteria: No precipitate is formed.

Change to read:

• ▲**Aluminum** ⟨206⟩, *Procedure 1*▲ (CN 1-Jun-2023) (where it is labeled as intended for use in hemodialysis)

Test preparation: Prepare as directed in the chapter, using a portion equivalent to 10 g of sodium acetate trihydrate.

Acceptance criteria: 0.2 µg/g

SPECIFIC TESTS

• **pH** ⟨791⟩

Sample solution: Equivalent to 30 mg/mL of anhydrous Sodium Acetate in carbon dioxide-free water

Acceptance criteria: 7.5–9.2

• **Loss on Drying** ⟨731⟩

Analysis: Dry at 120° to constant weight.

Acceptance criteria

Anhydrous: NMT 1.0%

Trihydrate: 38.0%–41.0%

• **Insoluble Matter**

Sample: Equivalent to 20 g of anhydrous Sodium Acetate

Analysis: Dissolve the *Sample* in 150 mL of water, heat to boiling, and digest in a covered beaker on a steam bath for 1 h. Filter through a tared filtering crucible, wash thoroughly, and dry at 105°.

Acceptance criteria: The weight of the residue is NMT 10 mg (0.05%).

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in tight containers.

• **Labeling:** Label it to indicate whether it is the trihydrate or is anhydrous. Where Sodium Acetate is intended for use in hemodialysis, it is so labeled.

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

Topic/Question	Contact	Expert Committee
SODIUM ACETATE	Documentary Standards Support	SM52020 Small Molecules 5
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM52020 Small Molecules 5

Chromatographic Database Information: Chromatographic Database

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