**TESTS**

**Assay** Transfer about 350 mg of sample, accurately weighed, into a 250-mL beaker. Add 100 mL of glacial acetic acid, stir until completely dissolved, and titrate with 0.1 *N* perchloric acid, using crystal violet TS as the indicator.

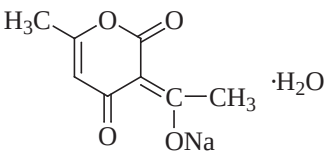
> **Caution**: Handle perchloric acid in an appropriate fume hood.

Each milliliter of 0.1 *N* perchloric acid is equivalent to 8.602 mg of $C_6H_5Na_3O_7$.
**Alkalinity** A solution of 1 g of sample in 20 mL of water is alkaline to litmus paper. Add 0.2 mL of 0.1 *N* sulfuric acid. No pink color appears when 1 drop of phenolphthalein TS is added.
**Lead** Determine as directed in the *Flame Atomic Absorption Spectrophotometric Method* under *Lead Limit Test*, Appendix IIIB, using a 5-g sample.
**Water** Determine as directed under *Water Determination*, Appendix IIB.

**Packaging and Storage** Store in tight containers.

## Sodium Dehydroacetate

Sodium 3-(1-Hydroxyethylidene)-6-methyl-1,2-pyran-2,4(3H)-dione



$C_8H_7NaO_4 \cdot H_2O$ Formula wt 208.15

INS: 266 CAS: [4418-26-2]

**DESCRIPTION**

Sodium Dehydroacetate occurs as a white or nearly white powder. One gram dissolves in about 3 mL of water, in 2 mL of propylene glycol, and in 7 mL of glycerin.

**Function** Preservative.

**REQUIREMENTS**

**Identification** Dissolve about 1.5 g of sample in 10 mL of water, add 5 mL of 2.7 *N* hydrochloric acid, collect the crystals with suction, wash with 10 mL of water, and dry between 75° and 80° for 4 h. The crystals melt between 109° and 111° (see *Melting Range or Temperature*, Appendix IIB).
**Assay** Not less than 98.0% and not more than 100.5% of $C_8H_7NaO_4$, calculated on the anhydrous basis.
**Lead** Not more than 2 mg/kg.
**Water** Between 8.5% and 10.0%.

**TESTS**

**Assay** Transfer about 500 mg of sample, accurately weighed, into a 125-mL Erlenmeyer flask, dissolve it in 25 mL of glacial acetic acid containing 1 drop of a 1:100 *p*-naphtholbenzene:glacial acetic acid solution that has been previously neutralized to a blue color, and titrate with 0.1 *N* perchloric acid to the original blue color. Each milliliter of 0.1 *N* perchloric acid is equivalent to 19.01 mg of $C_8H_7NaO_4$.

> **Caution**: Handle perchloric acid in an appropriate fume hood.

**Lead** Determine as directed in the *Flame Atomic Absorption Spectrophotometric Method* under *Lead Limit Test*, Appendix IIIB, using a 10-g sample.
**Water** Determine as directed under *Water Determination*, Appendix IIB.

**Packaging and Storage** Store in well-closed containers.

## Sodium Diacetate

Sodium Hydrogen Diacetate

$$CH_3COONa \cdot CH_3COOH \cdot xH_2O$$

$C_4H_7NaO_4 \cdot xH_2O$ Formula wt, anhydrous 142.09

INS: 262 CAS: [126-96-5]

**DESCRIPTION**

Sodium Diacetate occurs as a white, hygroscopic, crystalline solid. It is a molecular compound of sodium acetate and acetic acid. One gram is soluble in about 1 mL of water. The pH of a 1:10 aqueous solution is between 4.5 and 5.0.

**Function** Sequestrant; preservative; antimicrobial agent; mold inhibitor.

**REQUIREMENTS**
**Identification** A 1:10 aqueous solution gives positive tests for *Acetate* and for *Sodium*, Appendix IIIA.
**Assay** Not less than 39.0% and not more than 41.0% of free acetic acid ($CH_3COOH$), and not less than 58.0% and not more than 60.0% of sodium acetate ($CH_3COONa$), calculated on the anhydrous basis.
**Lead** Not more than 2 mg/kg.
**Readily Oxidizable Substances** (as formic acid) Not more than 0.2%.
**Water** Not more than 2.0%.

**TESTS**

**Assay**

*Free Acetic Acid* Dissolve about 4 g of sample, accurately weighed, in 50 mL of water, add phenolphthalein TS, and titrate with 1 *N* sodium hydroxide. Each milliliter of 1 *N* sodium hydroxide is equivalent to 60.05 mg of acetic acid ($CH_3COOH$).

*Sodium Acetate Content* Dissolve about 500 mg of sample, accurately weighed, in 50 mL of glacial acetic acid, and titrate with 0.1 *N* perchloric acid, determining the endpoint potentiometrically.

> **Caution**: Handle perchloric acid in an appropriate fume hood.

Each milliliter of 0.1 *N* perchloric acid is equivalent to 8.203 mg of sodium acetate ($CH_3COONa$).

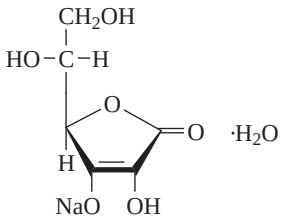
**Lead** Determine as directed in the *Flame Atomic Absorption Spectrophotometric Method* under *Lead Limit Test*, Appendix IIIB, using a 10-g sample.

**Readily Oxidizable Substances** Dissolve 1.0 g of sample in about 50 mL of water, add 10 mL of 2 *N* sulfuric acid, and heat the solution to between 80° and 90°. Titrate the hot solution with 0.1 *N* potassium permanganate to a faint pink color that persists for at least 15 s. Each milliliter of 0.1 *N* potassium permanganate is equivalent to 2.301 mg of formic acid ($CH_2O_2$).

**Water** Determine as directed under *Water Determination*, Appendix IIB.

**Packaging and Storage** Store in tight containers.

## Sodium Erythorbate



$C_6H_7NaO_6 \cdot H_2O$ Formula wt 216.12

CAS: [6381-77-7]

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**DESCRIPTION**

Sodium Erythorbate occurs as a white, crystalline powder or as granules. In the dry state it is reasonably stable in air, but in solution it deteriorates in the presence of air, trace metals, heat, and light. One gram dissolves in about 7 mL of water. The pH of a 1:20 aqueous solution is between 5.5 and 8.0.

**Function** Preservative; antioxidant.

**REQUIREMENTS**

**Identification**

A. A 1:50 aqueous solution slowly reduces alkaline cupric tartrate TS at 25°, but does so more readily upon heating.

B. Add a few drops of sodium nitroferricyanide TS, followed by 1 mL of 0.1 *N* sodium hydroxide to 2 mL of a 1:50 aqueous solution acidified with 0.5 mL of 0.1 *N* hydrochloric acid. A transient blue color immediately appears.

C. It gives positive tests for *Sodium*, Appendix IIIA.

**Assay** Not less than 98.0% and not more than 100.5% of $C_6H_7NaO_6 \cdot H_2O$.

**Lead** Not more than 5 mg/kg.

**Loss on Drying** Not more than 0.25%.

**Optical (Specific) Rotation** $[\alpha]_D^{25°}$: Between +95.5° and +98.0°.

**Oxalate** Passes test.

**TESTS**

**Assay** Dissolve about 400 mg of sample, accurately weighed, in a mixture of 100 mL of water, recently boiled and cooled, and 25 mL of 2 *N* sulfuric acid, and immediately titrate with 0.1 *N* iodine, adding starch TS as the indicator near the endpoint. Each milliliter of 0.1 *N* iodine is equivalent to 10.81 mg of $C_6H_7NaO_6 \cdot H_2O$.

**Lead** Determine as directed under *Lead Limit Test*, Appendix IIIB, using a *Sample Solution* prepared from a 2-g sample as directed for organic compounds, and 10 µg of lead (Pb) ion in the control.

**Loss on Drying** Determine as directed under *Loss on Drying*, Appendix IIC, drying a sample at room temperature in a vacuum over silica gel for 24 h.

**Optical (Specific) Rotation** Determine as directed under *Optical (Specific) Rotation*, Appendix IIB, using a solution containing 1 g of sample in each 10 mL of solute.

**Oxalate** Add 2 drops of glacial acetic acid and 5 mL of a 1:10 solution of calcium acetate to a solution of 1 g of sample in 10 mL of water. The solution remains clear.

**Packaging and Storage** Store in tight, light-resistant containers.

## Sodium Ferric Pyrophosphate

Sodium Iron Pyrophosphate

$Na_8Fe_4(P_2O_7)_5 \cdot xH_2O$ Formula wt, anhydrous 1277.02

CAS: [1332-96-3]

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**DESCRIPTION**

Sodium Ferric Pyrophosphate occurs as a white to tan powder. It is insoluble in water, but is soluble in hydrochloric acid.

**Function** Nutrient.