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Potassium Permanganate

$KMnO_4$ 158.03

Permanganic acid ($HMnO_4$), potassium salt;

Potassium permanganate ($KMnO_4$) CAS RN®: 7722-64-7; UNII: 00OT1QX5U4.

DEFINITION

Potassium Permanganate contains NLT 99.0% and NMT 100.5% of potassium permanganate ($KMnO_4$), calculated on the dried basis.

[**Caution—**Observe great care in handling Potassium Permanganate, because dangerous explosions may occur if it is brought into contact with organic or other readily oxidizable substances, either in solution or in the dry state.]

IDENTIFICATION

• **A. Identification Tests—General, *Permanganate*⟨191⟩:** A solution of it is deep violet-red when concentrated and pink when highly diluted.

ASSAY

• **Procedure**

Sample: 1000 mg of Potassium Permanganate

Titrimetric system

Mode: Residual titration

Titrant: 0.03 N potassium permanganate VS

Endpoint detection: Visual

Analysis: For each mg of Potassium Permanganate taken, add 2.13 mg of sodium oxalate, previously dried at 110° to constant weight, to a 500-mL conical flask. Add 150 mL of water and 20 mL of 7 N sulfuric acid, and heat to 80°. Titrate the excess oxalic acid with *Titrant*. Calculate the percentage of potassium permanganate ($KMnO_4$) in the portion of Potassium Permanganate taken:

$$\text{Result} = [(F_1 \times W_S) - (V_S \times N \times F_2)] \times (100/W)$$

F_1 = equivalency factor, 0.4718 mg of potassium permanganate per mg of sodium oxalate

W_S = weight of sodium oxalate taken (mg)

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

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

F_2 = equivalency factor, 31.61 mg of potassium permanganate per mEq

W = *Sample* weight (mg)

Acceptance criteria: 99.0%–100.5% on the dried basis

IMPURITIES

• **Insoluble Substances**

Sample: 2.0 g

Analysis: Dissolve the *Sample* in 150 mL of water that previously has been warmed to steam-bath temperature, and filter immediately through a tared, medium-porosity filtering crucible. Wash the filter with three 50-mL portions of the warm water, and dry the filtering crucible and the residue at 105° for 3 h.

Acceptance criteria: 0.2%; NMT 4 mg of residue is obtained.

SPECIFIC TESTS

• **Loss on Drying ⟨731⟩**

Analysis: Dry over silica gel for 18 h.

Acceptance criteria: NMT 0.5%

ADDITIONAL REQUIREMENTS

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

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

Topic/Question	Contact	Expert Committee
POTASSIUM PERMANGANATE	Documentary Standards Support	SM12020 Small Molecules 1
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM12020 Small Molecules 1

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
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