

## D. MONOGRAPHS

### Ammonium Persulfate

$(\text{NH}_4)_2\text{S}_2\text{O}_8$

diammonium peroxodisulfate

Mol. Wt. 228.20

[ 7727-54-0 ]

**Content** Ammonium Persulfate contains not less than 95.0% of ammonium persulfate  $(\text{NH}_4)_2\text{S}_2\text{O}_8$ .

**Description** Ammonium Persulfate occurs as colorless crystals or as a white crystalline powder.

**Identification** (1) To 0.5 g of Ammonium Persulfate, add 5 ml of sodium hydroxide solution (1 : 25), and heat. A gas with an odor of ammonia is evolved. This gas changes the color of a red litmus paper wetted with water to blue.

(2) Add 2 - 3 drops of manganese sulfate solution (1 : 100) to 5 ml of diluted sulfuric acid (1 : 20). Add 1 drop of silver nitrate solution (1 : 50) and 0.2 g of Ammonium Persulfate, and warm. A pink color develops.

**Purity** (1) Clarity and color of solution Colorless and almost clear (1.0 g, water 10 ml).

(2) Heavy metals Not more than 30  $\mu\text{g/g}$  as Pb.

**Test Solution** Weigh 1.0 g of Ammonium Persulfate, heat gradually first, and slightly ignite until white fumes are no longer evolved. Add 1 ml of hydrochloric acid and 5 drops of nitric acid to the residue, and evaporate to dryness on a water bath. Add 5 ml of diluted hydrochloric acid (1 : 4) to the residue, and evaporate to dryness again on a water bath. Dissolve the residue in 2 ml of diluted acetic acid (1 : 20) and about 20 ml of water, and add water to make 50 ml.

**Control Solution** Add 2 ml of diluted acetic acid (1 : 20) and water to 3.0 ml of Lead Standard Solution to make 50 ml.

(3) Arsenic Not more than 4.0  $\mu\text{g/g}$  as  $\text{As}_2\text{O}_3$ .

**Test Solution** Dissolve 1.0 g of Ammonium Persulfate in 10 ml of water, add 1 ml of sulfuric acid and 10 ml of sulfurous acid, concentrate to about 2 ml, and add water to make 10 ml. Use 5 ml of this solution as the test solution.

**Apparatus** Apparatus B.

**Residue on Ignition** Not more than 0.20%.

**Assay** Weigh accurately about 1.5 g of Ammonium Persulfate, dissolve in water to make exactly 250 ml. Measure exactly 50 ml of this solution, add 40 ml of 0.05 mol/l ferrous ammonium sulfate, exactly measured, add 5 ml of phosphoric acid, and titrate the excess ferrous ammonium sulfate with 0.02 mol/l potassium permanganate. Perform a blank test in the same manner.

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1 ml of 0.05 mol/l ferrous ammonium sulfate = 11.410 mg of  $(\text{NH}_4)_2\text{S}_2\text{O}_8$