COEI-1-PHODIA Diammonium hydrogen phosphate

Ammonium hydrogen phosphate

Ammonii phosphas

$(NH_4)2HPO_4 = 132.1$

SIN N°.342

1. **Objective, Origin and Scope of Application**

   This product is used as a fermentation activator and is reserved for fermentation operations. It makes available ammonium ions, which can be directly assimilated by the yeast. Excess phosphates can lead to iron breakdown.

   Statutory provisions limit the amount of ammonium that can be added.

2. **Labelling**

   The concentration of this product should be indicated on the label, including cases of mixtures. In addition, safety and storage conditions should also be stipulated.

3. **Centesimal Composition**

H_3PO_4	74.21
P_2O_5	53.75
NH_3	25.79

4. **Properties**

   Colorless, monoclinic crystals. This salt slowly loses small quantities of ammonia in air.

5. **Solubility**

Water at 20 °C	689 g/l
Water at 100 °C	1060 g/l
Alcohol, 95% by vol.	insoluble

6. Identifying Characteristics

6.1. Prepare a 1 pp 100 (m/v) solution in water. The solution has a pH of approximately 8, and a slight pink color is produced with several drops of phenolphthalein (R). At 25 °C, the pH of this solution should be between 7.8 and 8.4.

6.2. This solution produces a yellow precipitate with a nitro-molybdic reagent (R).

6.3. When heated with several drops of 30% sodium hydroxide solution (R), this solution releases ammonia.

7. Tests

7.1. Sulfur Ash

Quantified as indicated in the Annex, the proportion of diammonium phosphate ash should not be greater than 5 g/kg.

7.2. Preparing the solution for tests

Prepare a 10 pp 100 (m/v) solution.

7.3. Chlorides

To 0.5 ml of the solution prepared for testing under Paragraph 7.2, add 14.5 ml of water, 5 ml of nitric acid diluted to 10 pp 100 (R) and 0.5 ml of 5 pp 100 silver nitrate solution (R). After 15 minutes at rest in the dark, there should be no clouding, or any clouding visible should be less intense than that observed in the control prepared as detailed in the annex. (Hydrochloric acid content is less than 1 g/kg).

7.4. Sulfates

To 1 ml of solution prepared for tests under paragraph 7.2, add 2 ml of dilute hydrochloric acid (R), 17 ml of water and 2 ml of barium chloride solution (R). The mixture must not form any precipitate or any opalescence; or else, any opalescence that does occur should be less intense than that observed in the control prepared as indicated in the Annex. (Sulfuric acid content should be less than 1 g/kg).

7.5. Oxalic acid

To 5 ml of solution prepared for tests under paragraph 7.2, add 20 drops of acetic acid (R) and 5 ml of solution saturated with calcium sulfate (R). The solution should remain

clear.

7.6. Iron

To the 5 ml of solution prepared under paragraph 2, add 1 ml of concentrated hydrochloric acid (R) and 1 ml of 5 pp 100 potassium thiocyanate solution (R).

Coloring should be less intense than that of a control prepared with 2.5 ml of an iron solution in a concentration of 10 mg of iron per liter (R), 2.5 ml of water and the same quantities of the same reagents. (Iron content should be less than 50 mg/kg.)

Iron may also be analytically quantified by atomic absorption spectometry, according to the method specified in the Compendium.

7.7. Lead

By implementing the method detailed in the Compendium, carry out quantitative analysis of the solution prepared for testing according to Paragraph 7.2. (Lead content should be less than 5 mg/kg).

7.8. Mercury

Test for mercury in the solution prepared for testing (Par. 7.2), in accordance with the method detailed in the Compendium. (Mercury content should be less than 1 mg/kg.)

7.9. Arsenic

Using the method indicated in the Annex, test for arsenic in 2 ml of the test solution prepared in accordance with paragraph 7.2. (Arsenic content should be less than 3 mg/kg.)

7.10. Quantitative Ammonia Analysis

Dilute the solution prepared under Paragraph 7.2 to one-tenth strength, then place 10 ml of this dilute solution (0.10 g of ammonium phosphate) in a steam distillation device (described in the Annex). Add 10 ml of water, 10 ml of 30% sodium hydroxide (R) and distill 10 ml. Analytically quantify the distilled ammonia using 0.1 M hydrochloric acid. Let n be the number of milliliters used:

100 g of ammonium phosphate contains 1.7 n g of ammonia (NH_3). (Minimum content is 25 pp 100).

7.11. Quantitative Analysis of Phosphoric Acid

Place 25 ml of the solution prepared under paragraph 7.2 in a conical flask. Add 5 drops of phenolphthalein (R). The solution should have a pale pink color. If not, add just enough 0.1 M sodium hydroxide solution to cause incipient movement of the indicator. Add 10 drops of bromocresol green (R) and use a burette to pour 0.5 M sulfuric acid until the indicator turns green.

Let *n* be the volume in ml used:

One liter of 0.5 M solution corresponds to 71 g of phosphoric anhydride or 98 g of phosphoric acid.

Proportion of ammonium phosphate in g per 100 g:

in phosphoric anhydride	2.84 *n*
in phosphoric acid	3.92 *n*

The proportion of phosphoric anhydride must range between 51.6 and 55 pp 100, or between 71.5 and 76 pp 100 of phosphoric acid.

8. Storage

Ammonium phosphate must be stored away from moisture and heat, and in hermetically sealed containers.