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Activated Attapulgite

DEFINITION

Activated Attapulgite is a highly heat-treated, processed, native magnesium aluminum silicate.

IDENTIFICATION

• A. [X-RAY POWDER DIFFRACTION \(941\)](#)

Sample: 2 g

Analysis: Add the *Sample* in small portions to 100 mL of [water](#), with vigorous agitation. Allow to stand for at least 12 h to ensure complete hydration. Place 2 mL of the resulting mixture on a suitable glass slide, and allow to air-dry at room temperature to produce a uniform film. Place the slide in a vacuum desiccator over a free surface of [ethylene glycol](#). Evacuate the desiccator, and close the stopcock so that the ethylene glycol saturates the desiccator chamber. Allow to stand for 12 h. Record the X-ray diffraction pattern and calculate the *d* values.

Acceptance criteria: Several peaks are observed; the characteristic peak corresponds to a *d* value between 10.3 and 10.7 Å.

IMPURITIES

• [Loss on Ignition \(733\)](#)

Analysis: Ignite at 1000° for 1 h.

Acceptance criteria: 4.0%–12.0%

Delete the following:

▲ • **ARSENIC AND LEAD**

Sample solution: 50 mg/mL of Activated Attapulgite prepared as follows. To 5.0 g add 50 mL of 1 N [nitric acid](#), and boil for 30 min, adding 1 N [nitric acid](#) at times to maintain the volume. Filter into a 100-mL volumetric flask, wash the filter with [water](#), and dilute the combined filtrate and washings with [water](#) to volume.

Instrumental conditions

(See [Atomic Absorption Spectroscopy \(852\)](#))

Mode: Atomic absorption spectrophotometry equipped with graphite furnace

Atomization Source: Graphite furnace, as directed by the manufacturer of the instrument used

Analytical wavelength

Arsenic: 189.0 nm

Lead: 283.3 nm

Analysis

Sample: *Sample solution*

Determine the arsenic or lead in the solution against the corresponding standard

Acceptance criteria

Arsenic: NMT 2 ppm

Lead: NMT 0.001% ▲ (USP 1-Aug-2022)

• **ACID-SOLUBLE MATTER**

Sample: 2.0 g

Analysis: Boil the *Sample* with 100 mL of 0.2 N [hydrochloric acid](#) for 5 min, and cool. Add [water](#) to adjust the volume to 100 mL, and filter. Evaporate 50 mL of the filtrate so obtained to dryness. Ignite the residue at 600°.

Acceptance criteria: NMT 0.25 g (25%)

• **CARBONATE**

Sample: 1.0 g

Analysis: Mix the *Sample* with 15 mL of 0.5 N [sulfuric acid](#).

Acceptance criteria: No effervescence occurs.

• **VOLATILE MATTER**

Analysis: Ignite at 600° for 1 h.

Acceptance criteria: 3.0%–7.5% on the dried basis

SPECIFIC TESTS

• [Loss on Drying \(731\)](#)

Analysis: Dry at 105° to constant weight.

Acceptance criteria: NMT 4.0%

• **POWDER FINENESS**

Sample: 50 g

Analysis: Add the *Sample* to 450 mL of [water](#) containing 5 g of [sodium pyrophosphate](#), and stir for 10 min. Pour the resulting dispersion slowly through a No. 325 standard sieve (see [Particle Size Distribution Estimation by Analytical Sieving \(786\)](#)), and carefully wash the residue until clean. Dry the residue at 105° to constant weight.

Acceptance criteria: The dry weight of the residue is NMT 0.10% of the weight of the sample taken.

• **pH (791)**

Sample solution: 100 mg/mL of Activated Attapulgit prepared as follows. Disperse 1.0 g of Activated Attapulgit in 10 mL of [carbon dioxide-free water](#), and mix.

Acceptance criteria: 7.0–9.5

• **ADSORPTIVE CAPACITY**

Barium chloride solution: 20 mg/mL of [barium chloride](#) in [water](#)

Methylene blue solution: 1 mg/mL of [methylene blue](#) in [water](#)

Standard solution: 1.5 µg/mL of [methylene blue](#) in [water](#)

Sample solution: Prepare a solution of 100 mg/mL of Activated Attapulgit in [water](#). To 10 mL of this solution add 80 mL of *Methylene blue solution*, and shake. Add 10 mL of *Barium chloride solution*, and shake. Allow to stand for 15 min. Transfer 40 mL of the supernatant to a 50-mL centrifuge tube, and centrifuge. To 5 mL of the clear supernatant add 495 mL of [water](#), and mix.

Analysis

Samples: *Standard solution* and *Sample solution*

Compare the color of the *Sample solution* to that of the *Standard solution*.

Acceptance criteria: The color of the *Sample solution* is not deeper than that of the *Standard solution*.

• **MICROBIAL ENUMERATION TESTS (61)** and **TESTS FOR SPECIFIED MICROORGANISMS (62)**: It meets the requirements of the test for absence of *Escherichia coli*.

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
ACTIVATED ATTAPULGITE	Documentary Standards Support	SM32020 Small Molecules 3
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM32020 Small Molecules 3

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

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