Status: Currently Official on 17-Feb-2025
Official Date: Official as of 01-Jun-2023
Document Type: USP Monographs
DocId: GUID-4C27F39B-D5DC-43DD-B002-5F34A4C3D3AB_4_en-US
DOI: https://doi.org/10.31003/USPNF_M2286_04_01
DOI Ref: 5qjk6

Aluminum Sesquichlorohydrate Solution

» Aluminum Sesquichlorohydrate Solution consists of complex basic aluminum chloride that is polymeric and encompasses a range of aluminum-to-chloride atomic ratios between 1.26:1 and 1.90:1. The following solvents may be used: water, propylene glycol, dipropylene glycol, or alcohol. It contains the equivalent of not less than 90.0 percent and not more than 110.0 percent of the labeled concentration of anhydrous aluminum sesquichlorohydrate.

Packaging and storage—Preserve in well-closed containers.

Labeling—Label Solution to state the solvent used and the claimed concentration of anhydrous aluminum sesquichlorohydrate contained therein.

Identification—

A: A solution containing the equivalent of about 100 mg of anhydrous aluminum sesquichlorohydrate per mL responds to the tests for *Aluminum* ⟨191⟩ and for *Chloride* ⟨191⟩.

B: Identification of propylene glycol (where stated on the label)—Add about 10 mL of isopropyl alcohol to 2 g of Solution, mix, and filter. Evaporate the filtrate to about 1 mL on a steam bath: the IR absorption spectrum of a film of this solution on a silver chloride disk exhibits maxima only at the same wavelengths as that of a similar preparation of a film of propylene glycol.

C: Identification of dipropylene glycol (where stated on the label)—Add about 10 mL of isopropyl alcohol to 2 g of Solution, mix, and filter. Evaporate the filtrate to about 1 mL on a steam bath: the IR absorption spectrum of a film of this solution on a silver chloride disk exhibits maxima only at the same wavelengths as that of a similar preparation of a film of dipropylene glycol.

D: Identification of alcohol (where stated on the label)—Mix 5 drops of Solution in a small beaker with 1 mL of potassium permanganate solution (1 in 100) and 5 drops of 2 N sulfuric acid, and cover the beaker immediately with filter paper moistened with a freshly prepared solution of 0.1 g of sodium nitroferricyanide and 0.25 g of piperazine in 5 mL of water: an intense blue color is produced on the filter paper, the color becoming paler after a few minutes.

pH ⟨791⟩**:** between 3.0 and 5.0, in a solution prepared by diluting 3 g of the Solution with water to obtain 10 mL.

Change to read:

▲**Arsenic** ⟨211⟩, *Procedures, Procedure 1*▲ (CN 1-Jun-2023)**:** Prepare the *Test Preparation* using an accurately weighed quantity of the Solution. The limit is 2 µg per g.

Limit of iron—Using Aluminum Sesquichlorohydrate Solution instead of Aluminum Chlorohydrate Solution, proceed as directed in the test for the *Limit of iron* under *Aluminum Chlorohydrate Solution*. The limit is 75 µg per g.

Content of aluminum—Using Aluminum Sesquichlorohydrate Solution instead of Aluminum Chlorohydrate Solution, proceed as directed in the test for the *Content of aluminum* under *Aluminum Chlorohydrate Solution*. Use the result to calculate the *Aluminum/chloride atomic ratio*.

Content of chloride—Using Aluminum Sesquichlorohydrate Solution instead of Aluminum Chlorohydrate Solution, proceed as directed in the test for the *Content of chloride* under *Aluminum Chlorohydrate Solution*. Use the result to calculate the *Aluminum/chloride atomic ratio*.

Aluminum/chloride atomic ratio—Divide the percentage of aluminum found in the test for *Content of aluminum* by the percentage of chloride found in the test for *Content of chloride*, and multiply by 35.453/26.98, in which 35.453 and 26.98 are the atomic weights of chlorine and aluminum, respectively: the ratio is between 1.26:1 and 1.90:1.

Assay—Calculate the percentage of anhydrous aluminum sesquichlorohydrate in the Solution by the formula:

$$Al(\{26.98x + [17.01(3x - 1)] + 35.453\}/26.98x)$$

in which *Al* is the percentage of aluminum found in the test for *Content of aluminum*, *x* is the aluminum/chloride atomic ratio found in the test for *Aluminum/chloride atomic ratio*, 26.98 is the atomic weight of aluminum, 17.01 is the molecular weight of the hydroxide anion (OH), and 35.453 is the atomic weight of chlorine (Cl).

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

Topic/Question	Contact	Expert Committee
ALUMINUM SESQUICHLOROHYDRATE SOLUTION	Documentary Standards Support	SM32020 Small Molecules 3

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REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM32020 Small Molecules 3

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. Information currently unavailable

Current DocID: GUID-4C27F39B-D5DC-43DD-B002-5F34A4C3D3AB_4_en-US
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