COEI-1-CHLARG Silver[1] chloride

N° CAS : 7783-90-6

1. Object, origin and scope of application

This monograph relates to silver chloride used for adsorption into an inert carrier material with a view to its use in wine.

Silver chloride is used for the treatment of wines to remove fermentation and storage-related abnormal odours (odours caused by reduction reactions, characterised by the presence of hydrogen sulphide and thiols).

Silver sulphide formed during the treatment remains adsorbed by the inert carrier material and together they can be separated by filtration.

The inert carrier materials, such as, for instance, kieselguhr (diatomaceous earth), bentonite, kaolin, etc. should comply with the prescriptions of the International Oenological Codex.

2. Labelling

The product concentration, batch number, use-by-date, safety warnings and storage conditions should be indicated on the label.

3. Appearance

Silver chloride, in its pure state, is a white solid matter.

4. Composition (test trials)

The silver chloride used should have a minimum purity of 99%. Determination of the silver content is conducted according to the atomic absorption spectrophotometry (AAS) method (7.8).

The silver chloride content in the inert carrier material should be higher than or equal to 2%.

5. Identification of silver chloride

On exposure to light, silver chloride undergoes photolytic decomposition (with darkening).

Silver chloride is partially soluble in a 3% ammoniacal solution (bromide and iodide do not go into solution in the cold) and subsequent addition of potassium iodide solution

results in the precipitation of yellow silver iodide (higher sensitivity to light than AgCl). Alternatively, a diluted solution of red potassium hexacyanoferrate(III) can be added instead of iodide. A brown precipitate ($Ag_3[Fe(CN)_6]$) is formed.

6. Solubility of silver chloride

In water at 25 °C: 0.00188 g/L.

Insoluble in alcohol and nitric acid.

Soluble in sulphuric acid, hydrochloric acid, thiosulphate and ammonium solutions upon complex formation.

7. Tests

7.1. Preparation of test solution

Place 0.5 g of sodium chloride and 20 mL of 0.1 mol/L sodium thiosulphate solution in a 50 mL beaker. Mix for 30 minutes. Afterwards, allow to rest/sediment for 5 minutes. Filter the supernatant using a single-use syringe with a filter, pore size 0.45 µm. Transfer 0.5 mL filtrate to a 100 mL volumetric flask and fill up to the calibration mark with distilled water.

7.2. Appearance of test solution

The solution must be colourless, possibly cloudy. The filtrate is colourless.

7.3. Iron

Determine the content according to the atomic absorption spectrophotometry (AAS) method described in Chapter II of the International Oenological Codex; content below 5 mg/kg.

7.4. Nickel

Determine the content according to the atomic absorption spectrophotometry (AAS) method described in Chapter II of the International Oenological Codex; content below 5 mg/kg.

7.5. Lead

Determine the content according to the atomic absorption spectrophotometry (AAS) method described in Chapter II of the International Oenological Codex; content below 5 mg/kg.

7.6. Mercury

Determine the content according to the atomic absorption spectrophotometry (AAS) method described in Chapter II of the International Oenological Codex; content below 1 mg/kg.

7.7. Arsenic

Determine the content according to the atomic absorption spectrophotometry (AAS) method described in Chapter II of the International Oenological Codex; content below 3 mg/kg.

7.8. Silver

Determination by atomic absorption spectrophotometry (AAS), described in the Compendium of International Methods of analysis of wines an musts, after preparation of a test solution (7.1). Calibration with 1 mg/L, 2.5 mg/L and 5 mg/L Ag-reference solutions.

8. Storage

Silver chloride must be stored in a dry place, protected from light in hermetically sealed packaging.

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[1] Silver chloride used for the treatment of wine should be adsorbed into an inert carrier material