COEI-1-POTALG Potassium alginate

Kalii Alginas

1. Objective, Origin and Scope of Application

This is a potassium salt of alginic acid extracted from various types of pheophyceae algae, in particular laminaria, by means of alkaline digestion and purification.

It is a clarifying agent used during the second fermentation in the bottle for sparkling wines.

2. Labelling

The label should indicate the product's purity and safety and storage conditions.

3. Properties

Potassium alginate is a white or yellowish powder which is nearly odorless and itasteless and which is composed of fiber fragments, when seen under a microscope.

With water, it produces a viscous solution. The pH of this solution is typically between 6 and 8. It is soluble in strong alcohol and in most organic solvents.

A gelatinous calcium alginate precipitate forms if a 0.50 ml of 20 pp 100 calcium chloride solution (R) is added to 5 ml of an aqueous 1 pp 100 potassium alginate (m/v) solution.

A gelatinous alginic acid precipitate form if 1 ml of sulfuric acid diluted to 10 pp 100 (R) is added to 10 ml of an aqueous 1 pp 100 potassium alginate (m/v) solution.

4. Tests

4.1. Starch

Add 5 ml of iodinated water (R) to 5 ml of aqueous 1 pp 100 potassium alginate (m/v) solution. No blue coloration should develop.

4.2. Gelatin

Add 1 ml of 2 pp 100 hot tannin (R) to 10 ml of aqueous 1 pp 100 potassium alginate (m/v) solution. No precipitate should form.

4.3. Desiccation loss

Desiccation loss determined up to constant weight of a precisely-weighed sample of approximately 1 g. The weight loss of the potassium alginate at 100-105 °C should not be greater than 15 pp 100.

All limits indicated below are for dry product

4.4. Sulfur Ash

The sulfur ash content using the method indicated in the Annex is determined by analyzing the residue from the previous test (4.3). The concentration of sulfur ash in the potassium alginate sulfuric ashes should not exceed 40 pp 100.

4.5. Preparing the Solution for Tests

In a silica dish, calcine a sample whose weight corresponds to 2.5 g of dry product, without exceeding 550 °C. Take up the residue with 10 ml of water and 2 ml of concentrated nitric acid (R). Decant in a 50 ml volumetric flask. Add 2 ml of concentrated ammonium hydroxide (R). Top off to 50 ml with distilled water. Filter.

4.6. Sulfates

To 2 ml of the solution prepared for tests under paragraph 4.5, add 2 ml of dilute hydrochloric acid (R) and top off to 20 ml. Add 2 ml of 10 pp 100 barium chloride solution (R). The mixture should be clear; or else, the opalescence observed after 15 minutes should be less intense than that observed in a control prepared as indicated in the Annex. (Sulfate content expressed in terms of sulfuric acid should be less than 1 g/kg).

4.7. Chlorides

Add 5 ml of dilute 10 pp 100 nitric acid (R), 14 ml of distilled water and 0.5 ml of 5 pp 100 silver nitrate (R) to 1 ml of the test solution (Par. 4.5). Any opalescence that appears should be less intense than that of a control prepared as indicated in the Annex. (Chloride content, expressed in terms of hydrochloric acid, should be less than 1 g/kg).

4.8. Iron

Add 8 ml of water, 1 ml of concentrated hydrochloric acid (R), 1 drop of 1 pp 100 potassium permanganate solution (R) and 2 ml of 5 pp 100 potassium thiocyanate solution (R) to 2 ml of the test solution prepared under paragraph 4.5.

Any red coloration that appears should be less intense than that of a control prepared with 3 ml of iron (III) solution in a concentration of 0.010 g iron per liter (R), 7 ml of water and the same quantities of concentrated hydrochloric acid (R) and 5 pp 100 potassium thiocyanate solution (R). (Iron content should be less than 300 mg/kg).

Iron contant can also be determined by atomic absorption spectometry, by implementing the technique described in the compendium.

4.9. Cadmium

Using the technique described in the annex, determine cadmium content in the test solution (Par. 4.5). Content should be less than 1 mg/kg.

4.10. Lead

Using the technique described in the Compendium, determine lead content in the test solution (Par. 4.5). Content should be less than 5 mg/kg.

4.11. Mercury

Using the technique described in the annex, determine mercury content in the test solution (Par. 4.5). Content should be less than 1 mg/kg.

4.12. Arsenic

Using the technique described in the annex, determine arsenic content in the test solution (Par. 4.5). Content should be less than 3 mg/kg.

4.13. Sodium

Using flame photometry, determine sodium content in the test solution (Par. 4.5). Sodium content should be less than 1 pp 100.

5. Storage

Potassium alginate should be stored in hermetically sealed packages.

Calcium (Alignate)

SIN N°: 402

1. Object, origin and scope of application

Calcium alginate is obtained from a 1 % aqueous solution of potassium alginate or alginic acid placed in contact with a 20 % aqueous solution of calcium chloride. Beads of calcium alginate can be produced by dropping droplets of potassium alginate solution into a calcium chloride solution.

Beads of calcium alginate, dry or wet, can contain yeasts or lactic bacteria, dry or wet. They are used for foam forming purposes in the bottle for sparkling wine or to restart alcoholic fermentation in still wines or to start the malolactic fermentation.

These beads can be coated with a double layer of potassium or calcium alginate or with colloidal silica to prevent the precipitation of the yeasts or bacteria incorporated into the beads.

2. Labelling

The label should indicate the product's purity and the safety and storage conditions for calcium alginate, the yeasts or bacteria incorporated into the beads, the expiration date and the lot number.

3. Characteristics

Calcium alginate is a translucent gel, which is insoluble in water and wine. It only

dissolves in a sodium metaphosphate solution.

An alginic acid precipitate is also produced if 1 ml of sulfuric acid diluted to 10 % (R) is added to 10 ml of an aqueous 1 % (m/v) suspension of calcium alginate.