COEI-1-ALGIAC Alginic acid

Sin no. 400

C.A.S. no.: 9005-32-7

1. Subject, origin and scope

Alginic acid is a colloidal polysaccharide extracted from various varieties of brown algae in particular from Laminaria. The monomers constituting the □-L-glucuronic acid and □- D-mannuronic acid are bound in pairs as connections of the type 1 □4

$$\rightarrow 4\text{-}[\ \square\text{-glu-}1\rightarrow 4\text{-}\ \square\text{-glu-}1\rightarrow 4\text{-}\ \square\text{-man-}1\rightarrow 4\text{-}\ \square\text{-man-}1]_n\rightarrow 4\text{-}\ \square\text{-glu}$$

A clarifying agent, which, after being neutralized before use by potassium chloride, or potassium carbonate or potassium hydrogenocarbonate can be added to the drawn-off liquid, designed to carry out the second fermentation of sparkling wines (foam formation).

Alginic acid is made up on average of 200 basic units of uronic acids.

Their molecular weight ranges between 10 000 and 600 000 U.

2. Labeling

The concentration of alginic acid must be indicated on the label, as well as the conditions of safety and conservation.

3. Characteristics

Alginic acid exists in powder or filament form, or as amorphous granules of a yellowish white to brown color, insoluble in pure water and the various organic solvents. It can dissolve in water alkalized by sodium carbonate, sodium hydroxide or trisodium phosphate.

4. Identifying characteristics

1. pH

A suspension of 3% alginic acid in water has a pH ranging between 2 and 3.5.

2. Differentiation with other polysaccharides

An alginic acid solution of 5 g/l in sodium hydroxide (dissolve 4.3 g of sodium hydroxide in water and complete to 100 ml) precipitate in gelatinous form by adding a fifth of volume of a 2.5% solution of calcium chloride.

Furthermore, an addition of a half volume of a solution saturated with ammonia sulfate to the solution previously described does not cause any turbidity.

These two tests can be used to differentiate alginic acid from other polysaccharides that may be used in foodstuffs or pharmaceuticals.

3. Organoleptic characteristics

Alginic acid must have no taste, or abnormal odor.

5. Tests

All the limits described below refer to the dry weight of alginic acid.

1. Insoluble in a solution of sodium hydroxide

Dissolve by prolonged magnetic agitation 1 g of alginic acid weighed with precision in 100 ml of a solution of sodium hydroxide (dissolve 4.3 g of sodium hydroxide in water and complete to 100 ml), centrifuge, decant, and wash the residue 5 times with distilled water, with centrifugation and drainage of the washwater each time. Transfer all the residue using distilled water to a Gooch filter that has been tared beforehand (filter made of sintered glass of low porosity), dry for 1 hour at 105°C and weigh again.

The rate of insoluble should not exceed 2% in relation to the dry weight of the alginic acid.

2. Loss on desiccation

Determine until constant weight, on a test specimen of 2 g, the loss of weight, at 100-105°C, the alginic acid must be lower than 15 p. 100

3. Sulfuric ash

Proceed as indicated in chapter II of the international oenological Codex. The sulfuric ash content should not be higher than 8 p 100 in weight of the alginic acid.

4. Preparation of the solution for tests

After weighing the ashes, dissolve them in 2 ml of concentrated hydrochloric acid (R) and 10 ml of water. Heat to activate the dissolution and add water until a volume equal to 25 times the weight of the dry alginic acid is obtained. 1 ml of this solution contains the mineral matter of 0.04 g of dry alginic acid.

5. Lead

On the solution prepared for tests (5.4), to carry out the dosage of lead according to the method described in chapter II of the international oenological Codex.
The lead content must be lower than 5 mg/kg.

6. Cadmium

On the solution prepared for the tests (5.4), determine the cadmium using the method described in chapter II of the international oenological Codex.
The cadmium content must be lower than 1 mg/kg.

7. Mercury

Determine the mercury using the method described in Chapter II of the international oenological Codex.
The mercury content must be lower than 1 mg/kg.

8. Arsenic

On the solution prepared for the tests (5.4), determine the arsenic using the method described in Chapter II of the international oenological Codex.
The arsenic content must be lower than 3 mg/kg.

9. Bacteriological control

Proceed as indicated in chapter II of the international Oenological Codex for each parameter.

Limit: total viable microorganisms: less than 5×10^3 CFU/g.

10. Coliforms

The number of coliforms must be lower than or equal to 1 per g.

11. Staphilococca

The number of staphilococca (□-haemolytics with positive coagulase) must be lower than or equal to 1 per g.

12. Salmonella

The number of salmonella must be lower than 1 per 100 g.

13. Yeast

Limit concentration: 5×10^2 CFU per g of preparation.

14. Lactic bacteria

Limit concentration: 10^2 CFU per g of preparation.

15. *Lactobacillus sp.*

Limit concentration: 10 CFU per g of preparation.

16. *Pediococcus sp.*

Limit concentration: absence in a sample of 10 g of preparation.

17. Acetic bacteria

Limit concentration: 10^3 CFU per g of preparation.

18. Moulds

Limit concentration: 5 x 10^2 CFU per g of preparation.

6. Storage

Alginic acid must be kept in sealed bags.

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.