COEI-1-KAOLIN Kaolin

Kaolinum

1. Objective, Origin and Scope of Application

Kaolin is a natural hydrated aluminum silicate.

It is used as a clarification agent in wines.

2. Labelling

The label should indicate purity and safety and storage conditions.

3. Properties

Fine white or yellowish-white powder which is oily to the touch. When weakened in hot water it releases a clay-like odor. It is insoluble in water and dilute acids.

The product of the alkaline liquefaction of kaolin taken up by water exhibits the reaction properties of alkaline aluminates and alkaline silicates.

4. Tests

4.1. Consistency

Mix 1 g of kaolin with 1ml of water. The resulting paste should not be runny.

4.2. Water Loss at 700 °C

Burn a precisely-weighed sample of about 1 g of kaolin at 700 °C. Weight loss should not be greater than 15 pp 100.

4.3. Products Soluble in Dilute Acids

Weaken 1 g of kaolin in 50 ml of 0.2M hydrochloric acid. Bring to a boil under reflux for 15 minutes. Filter. The filtrate, when evaporated then incinerated, should not leave a residue of more than 2 pp 100.

4.4. Preparing the Solution for Tests

Macerate 5 g of kaolin with 100 ml of citric acid in a concentration of 5 g per liter with a pH of 3.5 for 24 hours, stirring from time to time. Filter.

4.5. Soluble Iron

Add 1 ml of concentrated hydrochloric acid (R) and 5 ml of 5 pp 100 potassium thiocyanate to 10 ml of the solution prepared for tests under paragraph 4.4. The resulting coloration should be less intense than that

of a control prepared with 5 ml of an iron solution in a concentration of 0.010 g of iron

per liter (R), 5 ml of citric acid in a concentration of 20 g per liter (R), 1 ml of concentrated hydrochloric acid (R) and 5 ml of 5 pp 100 potassium thiocyanate (R). (Soluble iron content should be less than 100 mg/kg).

It is also possible to determine iron content using the atomic absorption photometry method described in the Compendium.

4.6. Calcium

To 5 ml of the solution prepared for tests under paragraph 4.4, add 5 ml of ammonium oxalate in a 4 pp 100 solution (R), 5 drops of bromophenol blue (R) and a sufficient quantity of concentrated ammonium hydroxide (R) to turn the indicator blue. There should be no clouding.

4.7. Soluble Magnesium and Aluminum

To 5 ml of the solution prepared for tests under paragraph 4.4, add 5 ml of 10 pp 100 sodium phosphate solution (R), 1 drop of phenolphthalein in a concentration of 1 g per 100 ml alcohol at 90% by volume (R) and a sufficient quantity of diluted ammonium hydroxide (R) to obtain a pink coloration. No precipitate should form in less than one hour.

4.8. Lead

Using the technique described in the Compendium, determine the lead content in the test solution prepared in accordance with Par. 4.4. (Lead content should be less than 5 mg/kg.)

4.9. Mercury

Using the technique described in the annex, determine the mercury content in the test solution prepared in accordance with Par. 4.4. (Content should be less than 1 mg/kg.)

4.10. Arsenic

Using the technique described in the annex, determine the mercury content in the test solution prepared in accordance with Par. 4.4. (Content should be less than 3 mg/kg.)

4.11. Evaluation of Coarse Particles

Place a suspension of 5 g of kaolin in 60 ml of a 1 pp 100 tetrasodic pyrophosphate solution (R) in a 250 ml test tube (diameter of approximately 40 mm) with an emery stopper. Shake vigorously for 1-2 minutes. Let sit for 5 minutes then use a siphon to draw off 50 ml of the suspension. The siphon should have two tubes whose length ratio is 2:5. It should consist of a glass tube with a diameter of 5 mm. The tip of the small tube, which should be suitably tapered, is then placed and maintained below the surface of the liquid so the siphon is drained once 50 ml of the suspension have been

drawn.

Add 50 ml of water to the remaining liquid. Stir and let sit 5 minutes, then take another 50 ml sample with the siphon. Repeat this procedure until 400 ml of water have been taken up. Finally, decant the residue remaining in the test tube into a calibrated crucible.

Dry evaporate, then dry at 100 °C for 15 minutes. Weigh. The residue should not be greater than 2 pp 100.

4.12. Adsorption Power

Place 1 g kaolin and 10 ml 0.01M methylene blue in a test tube with a stopper and let the deposit form. Centrifuge the solution and dilute 100 times. The solution should be no more intensely colored than a 0.08 mM methylene blue solution.

5. Storage

Kaolin should be stored in well-ventilated, places at moderate temperatures in airtight containers and away from volatile substances it can adsorb.