New Monograph - Sodium Lignosulfonate

Please send comments to the Committee on Food Chemicals Codex, National Academy of Sciences, FO 3042, 2101 Constitution Avenue, N.W., Washington, DC 20418 or email them to fcc@nas.edu. All comments must be received by December 15, 1996, for consideration for the First Supplement.

July 1, 1996

Sodium Lignosulfonate

CAS: [8061-51-6]

DESCRIPTION

Sodium Lignosulfonate is a brown, amorphous polymer obtained from the spent sulfite pulping liquor of wood. It may contain up to 30% reducing sugars. It is soluble in water, but not in any of the common organic solvents. The pH of a 1 in 100 solution is approximately between 3 and 8.

Functional Use in Foods  Binder; dispersant; boiler water additive.

REQUIREMENTS

Identification

A. A 0.15-g/L solution of the sample gives positive tests for Sodium, Appendix IIIA.

B. Dissolve 100 mg of the sample in 50 mL of water. Add 1 mL each of 10% acetic acid and 10% sodium nitrite solutions to this solution. Mix the solution by swirling, and allow it to stand for 15 min at room temperature. A brown color appears.

C. The ultraviolet absorption spectrum of a 0.1-g/L solution of the sample at pH 5 exhibits a peak between 275 and 280 nm.

Assay  Not less than 5.0% sulfonate sulfur.

Lead  Not more than 1 mg/kg.

Loss on Drying  Not more than 10.0%.

Reducing Sugars  Not more than 30.0%.

Residue on Ignition  Not more than 20.0%.

Sodium  Not more than 10.0%.

Viscosity of a 50% Solution  Not more than 3000 centipoises.

TESTS

Assay for Sulfonate Sulfur  Proceed as directed under Assay for Sulfonate Sulfur in the monograph for Calcium Lignosulfonate.

Lead  A sample solution from a 3-g sample prepared as directed for organic compounds meets the requirements of the Lead Limit Test, Appendix IIIB, using 3 mg of lead ion (Pb) in the control.

Loss on Drying, Appendix IIC  Dry at 105° for 24 h.

Reducing Sugars  Proceed as directed under Reducing Sugars in the monograph for Calcium Lignosulfonate.

Residue on Ignition  Ignite 1 g as directed in the general method, Appendix IIC.
Sodium

Standard Solution  Using a certified 1000-ppm Sodium Standard Solution (Mallinckrodt, or equivalent), dilute quantitatively and stepwise with deionized water to obtain a Standard Solution containing 2 µg/mL. The Standard Solution should be stored in polyethylene bottles due to its instability in glass.

Sample Solution  Transfer 1.00 ± 0.05 g of a previously dried sample, accurately weighed, into a silica or porcelain dish. Ash in a muffle furnace at 246° to 260° for 2 to 4 h. Allow the ash to cool, and dissolve in 5 mL of 20% hydrochloric acid, warming the solution, if necessary, to complete solution of the residue. Filter the solution through acid-washed filter paper into a 500-mL volumetric flask. Wash the filter paper with hot water, dilute to volume, and mix. Using water as the solvent, prepare a 1 in 100 dilution of this solution to obtain the final Sample Solution.

Procedure  Using a suitably calibrated atomic absorption spectrophotometer, determine the absorbance of the Standard Solution and the Sample Solution at 589.0 nm, following the manufacturer's instructions for optimum operation of the spectrophotometer. The absorbance produced by the Sample Solution is not greater than that produced by the Standard Solution.

Viscosity of a 50% Solution  Proceed as directed under Viscosity of a 50% Solution in the monograph for Calcium Lignosulfonate.

Packaging and Storage  Store in well-closed containers.