Poloxamer 407

α-Hydro-*omega*-hydroxy-poly(oxyethylene)-poly(oxypropylene)(63–71 moles)poly(oxyethylene) Block Copolymer, Avg formula wt 12,500

CAS: 9003-11-6

DESCRIPTION

Poloxamer 407 is a copolymer condensate of ethylene oxide and propylene oxide having an average formula weight of 12,500. It occurs as a white solid having a melting range of about 52° to 56°. It is freely soluble in alcohol and in water, but is insoluble in propylene glycol and in ethylene glycol.

Functional Use in Foods Solubilizing and stabilizing agent in flavor concentrates.

REQUIREMENTS

Cloud Point of a 1 in 10 Solution Above 100°.
Ethylene Oxide, Propylene Oxide, and 1,4-Dioxane Not more than 5 mg/kg of each.
Heavy Metals (as Pb) Not more than 5 mg/kg.
Hydroxyl Value Between 8.5 and 11.5.
Molecular Weight Between 9760 and 13,200.
pH of a 2.5% Solution Between 6.0 and 7.4.

TESTS

Cloud Point of a 1 in 10 Solution Dissolve about 5 g of the sample in 50 mL of water in a test tube, place the tube in a boiling water bath, and heat to 100°. The solution does not become cloudy.
Ethylene Oxide, Propylene Oxide, and 1,4-Dioxane Determine as directed in the monograph for *Poloxamer 331*.
Heavy Metals Prepare and test a 4-g sample as directed in *Method II* under the *Heavy Metals Test*, Appendix IIIB, using 20 µg of lead ion (Pb) in the control (*Solution A*).

Hydroxyl Value

Distilled Pyridine, *Phenolphthalein Indicator*, and *Phthalation Reagent* Prepare as directed in the monograph for *Poloxamer 331*.

Procedure Proceed as directed for *Procedure* under *Hydroxyl Value* in the monograph for *Poloxamer 331*, using a sample of about 45 g, accurately weighed, and adding 25 mL of *Distilled Pyridine* to both the sample flask and the blank flask before refluxing.

Molecular Weight Determine the *Hydroxyl Value*, *H*, and then calculate the molecular weight by the formula

$$56{,}100 \times (2/H).$$

pH of a 2.5% Solution Prepare a 2.5% solution of the sample in water, and determine the pH by the *Potentiometric Method*, Appendix IIB.

Packaging and Storage Store in tight containers.