

# ETHYL CELLULOSE

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## SYNONYMS

INS No. 462

## DEFINITION

Ethyl ether of cellulose, prepared from wood pulp or cotton by treatment with alkali and ethylation of the alkali cellulose with ethyl chloride. The article of commerce can be specified further by viscosity.

## Chemical names

Cellulose ethyl ether, ethyl ether of cellulose

## C.A.S. number

9004-57-3

## Assay

Not less than 44% and not more than 50% of ethoxyl groups (-OC<sub>2</sub>H<sub>5</sub>) on the dried basis (equivalent to not more than 2.6 ethoxyl groups per anhydroglucose unit).

## DESCRIPTION

Free-flowing, white to light tan powder

**FUNCTIONAL USES** Tableting aid, binder, filler, diluent of colour and other food additives

## CHARACTERISTICS

### IDENTIFICATION

#### Solubility (Vol. 4)

Practically insoluble in water, in glycerol, and in propane-1,2-diol, but soluble in varying proportions in certain organic solvents, depending upon the ethoxyl content. Ethyl cellulose containing less than 46-48% of ethoxyl groups is freely soluble in tetrahydrofuran, in methyl acetate, in chloroform, and in aromatic hydrocarbon ethanol mixtures. Ethylcellulose containing 46-48% or more of ethoxyl groups is freely soluble in ethanol, in methanol, in toluene, in chloroform, and in ethyl acetate.

#### Film forming test

Dissolve 5 g of the sample in 95 g of an 80:20 (w/w) mixture of toluene-ethanol. A clear, stable, slightly yellow solution is formed. Pour a few ml of the solution onto a glass plate, and allow the solvent to evaporate. A thick, tough continuous, clear film remains. The film is flammable.

#### pH (Vol. 4)

Neutral to litmus (1 in 20 suspension)

### PURITY

#### Loss on drying (Vol. 4)

Not more than 3% (105°, 2 h)

#### Sulfated ash (Vol. 4)

Not more than 0.4%  
Test 1 g of the sample (Method I)

#### Lead (Vol. 4)

Not more than 2 mg/kg

Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, "Instrumental Methods."

**METHOD OF  
ASSAY**

Determine the ethoxyl content as directed under *Ethoxyl and Methoxyl Group Determination* (see Volume 4).