

## ETHYL CELLULOSE

*Revised specification prepared at the 76<sup>th</sup> JECFA (2012), published in FAO JECFA Monographs 13 (2012) superseding specifications prepared at the 26<sup>th</sup> JECFA (1982), published in FNP 25 (1982) and FNP 52 (1992). Metals and arsenic specifications revised at the 57<sup>th</sup> JECFA (2001). A group ADI 'not specified' was established at the 35<sup>th</sup> JECFA (1989).*

### 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. Antioxidants permitted for use in food may be added for stabilizing purposes.

### 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, methyl acetate and aromatic hydrocarbon ethanol mixtures. Ethyl cellulose containing 46-48% or more of ethoxyl groups is freely soluble in ethanol, methanol, toluene and 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 AAS (Electrothermal atomization technique) appropriate to the specified level. The selection of sample size and method of sample preparation may be based on principles of methods described in Volume 4 (under "General Methods, Metallic Impurities").

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