

# POLYGLYCEROL ESTERS of INTERESTERIFIED RICINOLEIC ACID

*Prepared at the 17th JECFA (1973), published in FNP 4 (1978) and in FNP 52 (1992). Metals and arsenic specifications revised at the 55th JECFA (2000). An ADI of 0-7.5 mg/kg bw was established at the 17th JECFA (1973)*

## SYNONYMS

Glyceran esters of condensed castor oil fatty acids; polyglycerol esters of polycondensed fatty acids from castor oil; INS No. 476

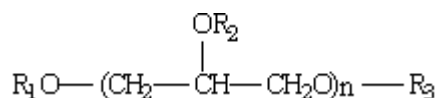
## DEFINITION

Prepared by the esterification of polyglycerol with condensed castor oil fatty acids.

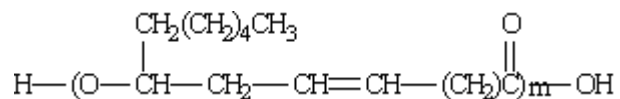
The article of commerce may be specified further as to saponification value, solidification point of the free fatty acids, iodine value, acid value, hydroxyl value, ash content and Refractive index.

## Structural formula

The major components have the general structure:



where the average value of n is about 3 and R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> each may be hydrogen or a linear condensation polymer of ricinoleic acid with itself thus:



where the average value of m is between 5 and 8

## DESCRIPTION

Highly viscous liquids

## FUNCTIONAL USES

Emulsifier

## CHARACTERISTICS

### IDENTIFICATION

#### Solubility (Vol. 4)

Insoluble in water and in ethanol; soluble in ether, hydrocarbons and halogenated hydrocarbons

#### Tests for fatty acids (Vol. 4)

Passes tests

#### Test for ricinoleic acid

The fatty acids liberated in test for fatty acids *Identification tests for functional groups* should have a *Hydroxyl value* corresponding to that for castor oil fatty acids (about 150 to 170)

#### Test for glycerol and polyglycerols

Spot 5 to 20 µl of the aqueous layer obtained in the test for fatty acids under *Identification test for functional groups* alongside control spots of glycerol on paper such as Whatman No. 3 and develop using descending chromatography for 36 h with isopropanol : water, 90:10. The glycerol spot

moves 40 cm and the polyglycerols are revealed in succession below that for glycerol when the paper is sprayed with either permanganate in acetone or ammoniacal silver nitrate.

#### PURITY

##### Polyglycerols

The polyglycerol moiety shall be composed of not less than 75% of di-, tri- and tetraglycerols and shall contain not more than 10% of polyglycerols equal to or higher than heptaglycerol.

##### 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."