

## Castor oil

CAS No. 8001-79-4

### General

Castor oil (also known as Ricinus oil) is a vegetable oil extracted by mechanical pressing of the Castor seed. It is pale-yellowish or almost colorless with a mild characteristic odour.

Because of its unique molecule structure there are numerous applications in various industrial segments.

### Standard specifications First Special Grade or 1<sup>st</sup> pressing\*

#### Physical characteristics

appearance (25°C)		clear and free of suspended matter
odour		slight, characteristic
colour	Gardner	max. 4
colour (on 5¼" Lovibond)		max. 20 yellow, max. 2 red
relative density (20°C)		0,954 - 0,969
refractive index (25°C)		1,477 - 1,481
viscosity	Gardner-Holdt	U - V

#### Chemical characteristics

acetyl value	mg KOH/g	min. 140
hydroxyl value	mg KOH/g	min. 160
saponification value	mg KOH/g	min. 177
acid value	mg KOH/g	max. 2
iodine value	g I <sub>2</sub> /100g	82 - 90
moisture, impurities & volatile matter	%	max. 0,25
free fatty acid	%	max. 1
unsaponifiable matter	%	max. 1

#### Fatty acid composition

Palmitic acid (C16)	%	max. 2
Stearic acid (C18)	%	max. 2,5
Oleic acid (C18)	%	max. 2,5 - 6
Ricinoleic acid (C18)	%	min. 85
Linoleic acid (C18)	%	max. 2,5 - 7
Linolenic acid (C18)	%	max. 1

\* Different grades of Castor oil (for example commercial grade, pale pressed grade, pharmaceutical grade etc.) are available on request

## Applications

- lubricants: in hydraulic fluids and lubricants for 2 stroke engines.
- greases.
- polyurethane: as the basic polyol in PU floor coatings, PU adhesives/sealants and PU foams.
- cosmetics & personal care: used in lipsticks, deodorant sticks and sun protecting products.
- pharmaceuticals: as an active ingredient and as laxative.
- electronics: as dielectric material for condensers.
- adhesives: both in PU adhesives and hot-melts.
- chemical industry: production of alkyd resins (for paints).
- as starting product for most other castor derivatives (for example DCO, HCO, ethoxylated castor oil).

## Packing

Castor oil is supplied in:

- cans (25 kg)
- drums (200 kg)
- IBC (1.000 kg)
- bulk (truckloads and/or ISO containers)



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## Castor oil FSG low acid value

CAS No. 8001-79-4

EINECS No. 232-293-8

### General

Castor oil (also known as Ricinus oil) is a vegetable oil extracted by mechanical pressing of the Castor seed. It is pale-yellowish or almost colourless with a mild characteristic odour. Because of its unique molecule structure there are numerous applications in various industrial segments.

### Standard specifications\*

#### Physical characteristics

appearance (25°C)		clear and free of suspended matter
odour		slight, characteristic
colour	Gardner	max. 4
colour (on 5¼" Lovibond)		max. 20 yellow, max. 2 red
viscosity (25°C)	mPa s	950 - 1.100
temperature of supply	°C	20 - 60

#### Chemical characteristics

hydroxyl value	mg KOH/g	160 - 168
saponification value	mg KOH/g	min. 177
acid value	mg KOH/g	max. 0,7
iodine value	g I <sub>2</sub> /100g	82 - 90
moisture & volatile matter	%	max. 0,25
free fatty acid	%	max. 0,35
insoluble impurities	%	max. 0,02

\* Different grades of Castor oil FSG are available on request

### Applications

- polyurethane: as the basic polyol in PU floor coatings, PU adhesives/sealants and PU foams.

### Packing

Castor oil FSG low water content is supplied in:

- bulk truckloads
- IBC
- drums

## Castor oil virgin Ph. Eur. 7.0

CAS No. 8001-79-4

### General

Castor oil (also known as Ricinus oil) is a vegetable oil extracted by mechanical cold pressing of the Castor seed. During the pressing the temperature of the oil is not allowed to exceed 50°C. It is slightly yellow or almost colorless with a mild characteristic odour.

Because of its unique molecule structure there are numerous applications in pharmaceutical and cosmetic segments.

### Standard specifications Castor oil virgin Ph. Eur. 7.0

#### Physical characteristics

appearance (25°C)		clear and free of suspended matter
odour		slight, characteristic
relative density (20°C)		0,954 - 0,969
refractive index (25°C)		1,477 - 1,481
viscosity	Gardner-Holdt	U - V

#### Chemical characteristics

acetyl value	mg KOH/g	min. 140
hydroxyl value	mg KOH/g	min. 160
saponification value	mg KOH/g	min. 177
acid value	mg KOH/g	max. 1,5
iodine value	g I <sub>2</sub> /100g	82 - 90
moisture, impurities & volatile matter	%	max. 0,15
free fatty acid	%	max. 1
unsaponifiable matter	%	max. 0,8
peroxide value	meq O <sub>2</sub> /kg	max. 5
identificaton A, B, C, D	Ph. Eur. (2.4.19)	complies
optical rotation	Ph. Eur. (2.5.6)	+3,5 - +6,0
specific absorbance (maximum at 268-270nm)	Ph. Eur. (2.2.25)	max. 1

### **Fatty acid composition**

Palmitic acid (C16)	%	max. 2
Stearic acid (C18)	%	max. 2,5
Oleic acid (C18)	%	max. 2,5 - 6
Ricinoleic acid (C18)	%	min. 85
Linoleic acid (C18:2)	%	max. 2,5 - 7
Linolenic acid (C18:3)	%	max. 1
Eicosenoic acid (C20:1)	%	max. 1
other fatty acids	%	max. 1

### **Applications**

- lubricants: in food grade lubricants or lubricants in contact with food products.
- polyurethane: as component for special mouldings for medical applications.
- cosmetics & personal care: used in lipsticks, deodorant sticks and sun protecting products.
- laxative.
- total parenteral nutrition.
- carrier of hormones in infusion fluids.
- eye drops.
- surface coating of pills.

### **Packing**

Castor oil is supplied in:

- cans (25 kg)
- drums (200 kg)
- IBC (1.000 kg)
- bulk (truckloads and/or ISO containers)



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## Dehydrated castor oil (DCO)

### General

Dehydrated castor oil is a castor oil from which approximately 5% of the chemically combined water has been removed. Therefore it has drying properties similar to those of Tung oil. Dehydration is carried out by heating the oil in the presence of catalysts such as sulphuric acid, phosphoric acid, clays and metal oxides. Dehydrated castor oil is a yellow oily liquid with characteristic odour.

### Standard specifications\*

		commercial grade	pale grade	special grade
refractive index (20 °C)		1,482 - 1,483	1,482 - 1,483	1,482 - 1,483
specific gravity (15 °C)		0,933 - 0,982	0,933 - 0,982	0,933 - 0,982
viscosity (25 °C)	Poise	1,6 - 2,8	1,6 - 2,8	1,6 - 2,8
viscosity	Gardner scale	G – I	G – I	G – I
colour		max. 8	max. 6	max. 5
acid value	mg KOH/g	max.6		max. 4
iodine value (Wijs)	g I <sub>2</sub> /100g	min. 130	min. 130	min. 130
hydroxyl value	mg KOH/g	max. 25		max. 20

\* Different grades of DCO are available on request.

### Applications

Dehydrated castor oil is an unique drying oil, which imparts good flexibility, fine gloss, toughness, adhesion, chemical and water resistance to the dry paint film with non-yellowing properties. DCO is a very suitable and even better substitute for Linseed oil. Paints with DCO are super white and offer superior finish.

Dehydrated castor oil is used as a primary binder for house paints, enamels, caulks, sealants and inks. In “cooked” varnishes it is combined with all the basic resins, rosins, rosin-esters, hydrocarbons and phenolics to produce clear varnishes and vehicles for pigmented coatings. DCO is also used in the manufacturing of lithographic inks, linoleum, putty and phenolic resins.

DCO is used with phenolics to obtain fast drying coatings with maximum alkali resistance as required in sanitary can lining, corrosion resistant coatings, traffic paints, varnishes, ink vehicles, wire enamels, aluminium paint appliance finishes and marine finishes.

DCO is also used to obtain fast kettling rate which gives lighter colour and lower acid varnishes.

### Packing

Dehydrated castor oil is supplied in:

- drums (190 kg)
- bulk (ISO containers)