

## Pro-Tex™ 1405ML, Glyceryl Monolaurate, Monoester > 90 % according USP

### 1. Description

Pro-Tex™ 1790ML is the molecularly distilled monoglyceride of more than 96% of lauric acid. Also known as **monolaurin**, or monolaurate, or glycerol monolaurate.

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### 2. Specification Glyceryl Laurate

#### Characteristic values

Tests	Spec	Unit
Appearance	White Powder	
Content	Min 90	%
Acid value	max. 3	mg KOH/g
Saponification value	190 – 210	mg KOH/g
Iodine value	max. 4	g I <sub>2</sub> /100 g
Peroxide value *	max. 3	mequi O/kg
Heavy metal	Max 5	ppb
Free Glycerol	max. 2	%
Melting point	55 - 60	°C
Alkaline impurities *	complies with Ph.Eur.	0.01 N HCl/2,00 g
Unsaponifiable matter *	max. 0,7	%

\* not included in Certificate of Analysis, limits guaranteed

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### 3. Properties

Pro-Tex™ 1405ML, or Monolaurin, is a distilled monoglyceride of lauric acid and is known to be multifunctional, acting as an emulsifier, and a natural preservative.

The potentially pathogenic bacteria inactivated by monolaurin include *Listeria monocytogenes*, *Staphylococcus aureus*, *Streptococcus agalactiae*, both the Gram positive organisms, and some gram-negative organisms (*Vibrio parahaemolyticus* and *Helicobacter pylori*). Monolaurin was 5000 times more inhibitory against *Listeria monocytogenes* than ethanol<sup>1)</sup>.

Mono- and diglycerides of edible fatty acids are generally permitted additives in foodstuff without limitation (german permitted additive regulation from 20.12.77). The EU number is E 471. According to CFR (Code of Federal Regulations) of FDA (Food and Drug Administration) 21 CFR § 184.1505 partial glycerides are GRAS (generally recognized as safe).

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## 4. Application Example in Cosmetics

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<b>Face Lotion, O/W penetrating, soothing</b>	
A. Carbopol 981 gel, 1 % <sup>2)</sup> (Carbomer)	13,0
Keltrol CG F <sup>3)</sup> (Xanthane)	0,5
Dry Flow PC <sup>4)</sup> (Al-Starch, Octenylbutanediocate)	4,0
Water ad	100,0
Preservative	q.s.
B. Propylene Glycol Dicaprylate/Dicaprate	5,0
Caprylic/Capric/Succinic Triglyceride	2,0
Pro-Tex <sup>TM</sup> 1405ML (Glyceryl Laurate)	3,0
C. Fragrance	q.s.

### Preparation

**A** is mixed together, stirred until homogeneous, and heated to about 55 °C. **B** is brought to the same temperature and emulsified into **A**. Then the emulsion is cooled to 30 °C and **C** is added.

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## 5. Storage

The shelf life is at least 3 years, when stored in tightly closed original packaging, protected from light and moisture.

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## 6. Literature list

- 1) Antimicrobial activity of ethanol, glycerol monolaurate or lactic acid against *Listeria monocytogenes*, International Journal of Food Microbiology, Volume 20, Issue 4, December 1993, Pages 239-246.
- 2) Formulation of food-grade microemulsions with glycerol monolaurate: effects of short-chain alcohols, polyols, salts and nonionic surfactants, European Food Research and Technology, Volume 226, Number 3 / January, 2008
- 3) Glycerol Monolaurate Inhibits *Candida* and *Gardnerella vaginalis* *In Vitro* and *In Vivo* but Not *Lactobacillus*, Antimicrobial Agents and Chemotherapy, February 2010, p. 597-601, Vol. 54, No. 2, 2009
- 4) Effect of glycerol monolaurate on bacterial growth and toxin production. Antimicrob Agents Chemother. 1992 March 36(3):626-31

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