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Certificate of Analysis: Cardamom Select CO₂, *Elettaria cardamomum*, dried fruits organically grown in Guatemala, CO₂ extracted in Germany.

Batch No: GE-421416

Lab No: 13613

Type No: 003.006

Raw material: *Elettaria cardamomum*, dried fruits organically grown in Guatemala

Country of origin of product: Germany

D/E - ratio: 18–22 kg raw material which yields 1 kg product

Production: November 2012

Retest: November 2017

Storage: Store in a cool, dry place and exclusion of light.

Analytical Check

Feature	Method	Limits	Value/Unit
Content of essential oil	21.006.01, Distillation, gravimetric	> 85	89,4 % (w/w)
Volatile components: 100 % method, extract			
alpha Pinene/beta Pinene	GCMS, cardamom.met	n.s.	1,2/0,24 %
Sabinene	GCMS, cardamom.met	n.s.	3,3 %
beta Myrcene	GCMS, cardamom.met	n.s.	1,3 %
Limonene	GCMS, cardamom.met	n.s.	1,6 %
1,8 Cineole	GCMS, cardamom.met	25 - 45	26,9 %
Linalool	GCMS, cardamom.met	n.s.	2,9 %
alpha Terpineol	GCMS, cardamom.met	n.s.	1,7 %
Linalyl acetate	GCMS, cardamom.met	n.s.	6,4 %
Citral (Neral+Geranial)	GCMS, cardamom.met	n.s.	0,29 %
Geraniol	GCMS, cardamom.met	n.s.	<0,1 %
Terpinyl acetate	GCMS, cardamom.met	30 - 50	45,5 %
Refractive index (20°C)			
	Abbe-Refractometer	1,4650 - 1,4685	1,4662
Density (20°C)			
	21.024.02, Pycnometer 0,910 - 0,980	0,9304 g/cm ³	

n.s. = not specified

n.d. = not detected

The data in this report of analysis have been determined carefully and to the best of our knowledge. Depending on transport and storage conditions the indicated data can be subject to certain changes which are outside of our influence. Hence the report has not the meaning of a guaranty in the legal sense and does not dispense the customer from making his own quality control before using the product.

The product meets specifications no. 16.192.02; date of analysis: 2012.11.08

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