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Certificate of Analysis: Ginger CO₂, *Zingiber officinalis*, dried rhizome from Nigeria, extracted in Germany.

Batch No: GE-541225

Date of Analysis: 2014.08.29

Type No: 014.001

Lab No: 17296

Production: July 2014

Retest: July 2019

D/E - ratio: 43 - 56 kg raw material yield 1 kg product.

Sensory Check

Feature	Reference	Result
Appearance:	clear, yellow liquid	meets
Odor:	characteristic verbena citrus-like odor	meets

Analytical Check

Feature	Method	Limits	Value	Unit
Content of essential oil 21.006.01, Distillation, gravimetric	82 - 95		90,6	% (g/100g)
Composition of the volatile compounds in extract:	GCMS, 100 % Method			
alpha Pinene	GCMS, ginger.met	n.s.	0,047	%
Camphene	GCMS, ginger.met	n.s.	2,3	%
beta Myrcene	GCMS, ginger.met	n.s.	0,38	%
Limonene	GCMS, ginger.met	n.s.	0,61	%
beta Phellandrene	GCMS, ginger.met	n.s.	3,6	%
1,8 Cineole	GCMS, ginger.met	n.s.	0,74	%
Neral/Geraniol	GCMS, ginger.met	n.s.	4,0 (1,5 / 2,5)	%
Geraniol	GCMS, ginger.met	n.s.	0,32	%
ar-Curcumene	GCMS, ginger.met	n.s.	6,1	%
alpha Zingiberene	GCMS, ginger.met	30 - 45	33,1	%
alpha Farnesene	GCMS, ginger.met	n.s.	7,8	%
beta Bisabolene	GCMS, ginger.met	n.s.	9,0	%
Sesquiphellandrene	GCMS, ginger.met	n.s.	12,6	%
Hexanal	GCMS, ginger.met	n.s.	0,012	%
Sum of Gingerols	21.027.03, HPLC	n.s.	2,3	%
Sum of Shogaols	21.027.03, HPLC	< 0,5	0,48	%
Sum of pungent compounds	21.027.03, HPLC	2 - 5	2,8	%
Refractive index (20°C)	Abbe-Refractometer	1,4880 - 1,4950	1,4948	
Density (20°C)	21.024.02, Pycnometer	0,875 - 0,890	0,8857	g/cm ³

n.s. = not specified n.d. = not detected

Storage conditions: Store in a cool, dry place!

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