



Gas Chromatography Analysis

Dear Customer,

Attached you will find the results of gas chromatographic analysis based on the information provided by our Producer/Laboratory for:

Sample Reference **1775**

We testify that the Chromatographic Analysis (GC) for the mentioned sample is identical with:

Product No.:	1775
Product Name:	Pine (Norway Pine)
Botanical Name:	Pinus resinosa
Batch No.:	1016237

Bühl, 2020-03-24

Ayus GmbH
Am Dreschschopf 1 D-77815 Bühl/Moos
Tel.: +49-(0)7227-60099-0 Fax: +49-(0)7227-60099-99
E-Mail: info@oshadhi.eu Web: www.oshadhi.eu

Dr. David Nayan

Identification	Column: BP5		
	R.T.	R.I.	%
Toluene	1.30	757	0.01
Hexanal	1.72	807	0.01
Tricyclene	3.22	917	0.37
α -Thujene	3.32	923	0.03
α -Pinene	3.48	932	40.38
Camphene	3.71*	946	1.54
α -Fenchene	3.71*	946	[1.54]
Thuja-2,4(10)-diene	3.79	951	0.07
Sabinene	4.14	972	0.05
β -Pinene	4.26	979	36.93
Myrcene	4.50	993	8.57
α -Phellandrene	4.76*	1008	2.15
2-Carene	4.76*	1008	[2.15]
α -Terpinene	4.93	1017	0.07
para-Cymene	5.11	1027	0.08
1,8-Cineole	5.19*	1031	2.56
Limonene	5.19*	1031	[2.56]
β -Phellandrene	5.19*	1031	[2.56]
cis- β -Ocimene	5.33	1039	tr
trans- β -Ocimene	5.51	1049	tr
γ -Terpinene	5.70	1059	0.10
<i>P. mariana</i> biomarker**	5.99	1075	0.04
Terpinolene	6.18	1085	0.63
para-Cymenene	6.37	1096	0.05
α -Pinene oxide	6.50	1102	0.01
endo-Fenchol	7.04	1122	0.12
α -Campholenal	7.21	1128	0.06
trans-Pinocarveol	7.51	1139	0.27
Camphor	7.71	1146	0.06
Camphene hydrate	7.93	1154	0.04
Pinocarpone	8.07	1160	0.05
Pinocamphone	8.14	1162	0.10
Borneol	8.48	1175	0.11
Isopinocamphone	8.55	1177	0.07
Terpinen-4-ol	8.69	1182	0.14
Myrtenal	9.23	1201	0.12
α -Terpineol	9.33	1203	1.37
Verbenone	9.74	1213	0.05
Thymol methyl ether	10.51	1230	0.05
Bornyl acetate	12.83	1281	0.29
α -Longipinene	15.74	1331	0.02

α -Copaene	17.13	1352	0.03
Longifolene	19.52	1389	0.46
β -Caryophyllene	20.46	1402	0.95
α -Humulene	23.19	1435	0.15
Germacrene D	25.42	1462	1.01
α -Murolene	27.41	1486	0.03
γ -Cadinene	28.42	1498	0.05
δ -Cadinene	29.10	1507	0.16
Total identified		99.37%	