



PLANT THERAPY

100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: O20101

ESSENTIAL OIL: ORANGE
BOTANICAL NAME: CITRUS SINENSIS
ORIGIN: USA

KEY CONSTITUENTS IN THIS BATCH OF ORANGE OIL	%
LIMONENE	94.8
β -MYRCENE	1.9
α -PINENE	0.5
SABINENE	0.4
LINALOOL	0.2
OCTANAL	0.2
GERANIAL	0.1
NONANAL	0.1
VALENCENE	0.04
NERAL	0.03
β -PINENE	0.03
NOOTKATONE	0.01

Comments from Robert Tisserand: This orange oil conforms to the ISO standard, and smells great - intense, fresh orange.

CUSTOMER :

**PLANT THERAPY
126 Locust Street South
Twin Falls, ID 83 301
USA**

Sample nature: ESSENTIAL OIL
Botanical species: CITRUS SINENSIS
Reference name: ORANGE
Batch number: O20101
Origin: USA
Part: FRESH FRUIT RIND
Pyrenessences reference: C802
Date of reception: 02/13/2015
Date analysis: 02/19/2015
Packaging: Amber flask of 5 mL – ambient temperature
Analysis: Classic
Shelf life: 1 year

Validated report by :

Daniel DANTIN



GAS CHROMATOGRAPHY norm NF ISO 11024

Analysis conditions :

CPG 6890 / MS 5973 AGILENT – Column : VF WAX polar 60 m × 0,25 mm × 0,5 µm

CPG 6890 FID AGILENT - Column : VF WAX polar 60 m × 0,25 mm × 0,5 µm

Temperature program : 6 mn to 60 °C –2 °C/mn→250 °C - 20mn to 250 °C

Carrier gas He : 23 psis/MS – 30 psis/FID

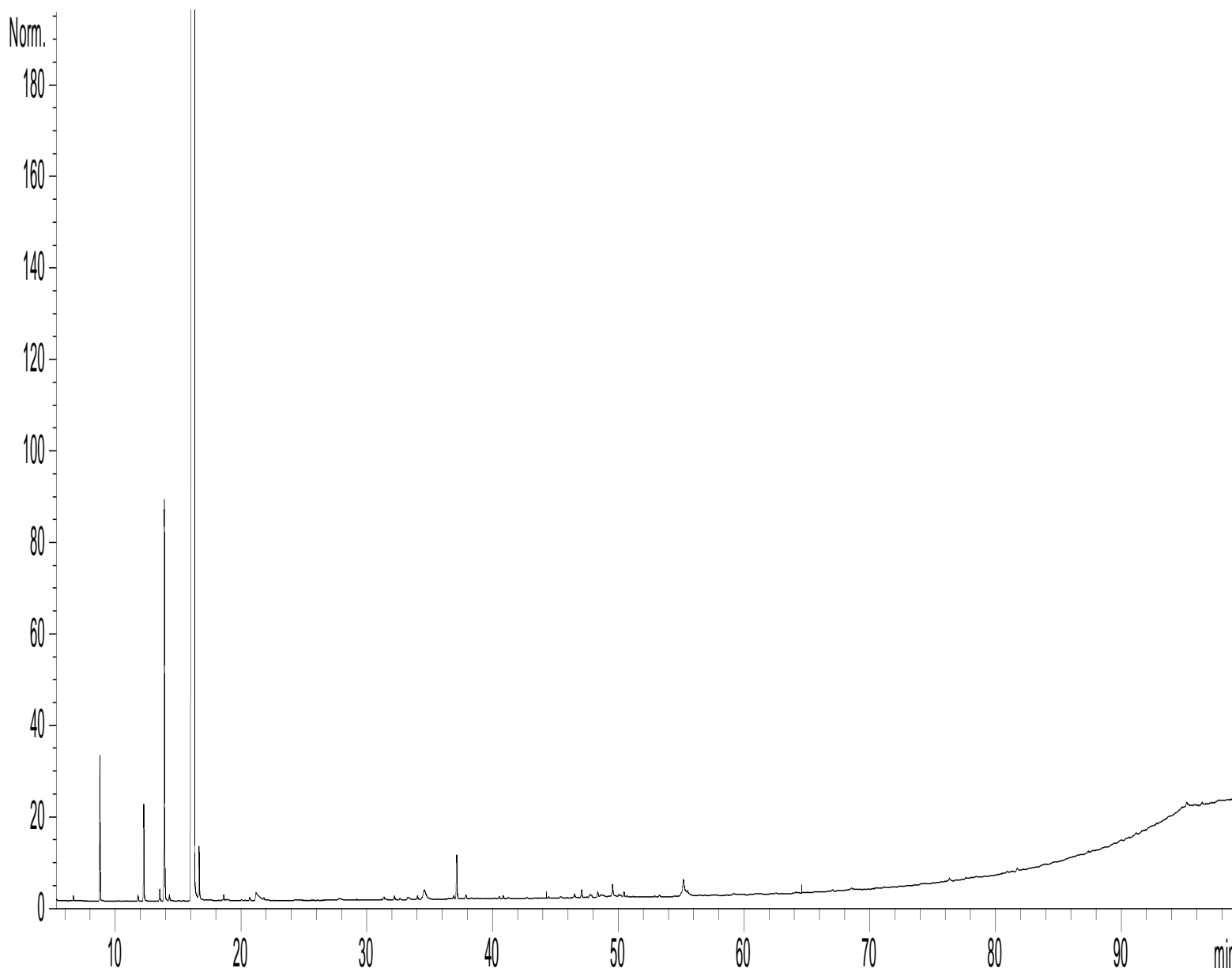
Sample injection / split : 1 µl of 10 % solution in hexane,

Mass range : 30 to 350, Oil components are identified by a combination of retention times (our own database) and mass spectra library NKS 75 000 records,

Percentages are calculated from GC/FID peaks areas without using corrections factors,

Chromatographic profile (GC/FID)

FID1 A, (Z:\PLANTHERICS15C802.D)



Identification results 1 : ORANGE USA BATCH O20101

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
1	6,6	ETHANOL	0,01		
2	8,8	α-PINENE	0,54	0,40 – 0,80	
3	11,8	β-PINENE	0,03	0,02 – 0,15	
4	12,2	SABINENE	0,43	0,20 – 0,80	
5	13,5	Δ3-CARENE	0,06		
6	13,9	β-MYRCENE	1,91	1,50 – 3,50	
7	14,3	α-PHELLANDRENE	0,03		
8	16,3	LIMONENE	94,81	93,0 – 96,0	94,81
9	16,6	β-PHELLANDRENE	0,27		
10	18,5	γ-TERPINENE	0,01		
11	18,6	Trans-β-OCIMENE	0,03		
12	20,0	p-CYMENE	0,01		
13	20,7	TERPINOLENE	0,02		
14	21,2	OCTANAL	0,18	0,10 – 0,40	
15	27,8	NONANAL	0,06	0,01 – 0,06	
16	31,3	Cis-1,2-EPOXYDE DE LIMONENE	0,02		
17	32,1	Trans-THUYANOL	0,01		
18	32,2	Trans-1,2- LIMONENE EPOXIDE	0,02		
19	32,6	ACETIC ACID	0,01		
20	33,3	CITRONELLAL	0,04		
21	34,0	α-COPAENE	0,02		
22	34,5	DECANAL	0,22		
23	37,0	LINALOOL	0,22	0,15 – 0,70	0,22
24	37,1	β1-CUBEBENE	0,03		
25	37,9	1-OCTANOL	0,03		
26	40,2	β-ELEMENE	0,01		
27	40,5	β-CUBEBENE	0,02		
28	40,9	β-CARYOPHYLLENE	0,02		
29	42,7	Cis-p-MENTHA-2,8-DIEN-1-OL	0,01		
30	44,5	ALLO-AROMADENDRENE	0,01		
31	45,3	E-β-FARNESENE	0,01		
32	45,4	Trans-p-MENTHA-2,8-DIEN-1-OL	0,01		
33	46,3	α-HUMULENE	0,01		
34	46,5	NERAL	0,03	0,03 – 0,10	0,03
35	47,1	α-TERPINEOL	0,05		
36	47,7	BORNEOL	0,04		
37	48,3	DODECANAL	0,04		
38	48,6	GERMACRENE D	0,06		
39	49,2	VALENCENE	0,04	0,01 – 0,40	
40	49,5	GERANIAL	0,08	0,05 – 0,20	0,08
41	50,0	CARVONE	0,02		
42	50,3	CITRONELLOL	0,01		0,01
43	50,4	δ-CADINENE	0,02		
44	52,9	NEROL	0,01		
45	53,2	PERILLALDEHYDE	0,02		

Identification results 2 : ORANGE USA BATCH O20101

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
46	55,0	Trans-CARVEOL	0,04		
47	55,2	GERANIOL	0,23		0,23
48	55,5	p-CYMENE-8-OL	0,09		
49	76,3	β-SINENSAL	0,03		
50	77,6	CAPRIC ACID	0,02		
51	81,7	α-SINENSAL	0,03		
52	91,2	NOOTKATONE	0,01	0,01 – 0,06	
		TOTAL	99,99		95,38