GC-MS ANALYSIS RESULTS FOR BATCH ID: CS201L60001

ESSENTIAL OIL TYPE: Organic Orange
BOTANICAL NAME: Citrus Sinensis
PLANT PART: Fresh Fruit Rind
COUNTRY OF ORIGIN: Mexico

KEY CONSTITUENTS IN THIS BATCH	%
LIMONENE	94.78%
β-MYRCENE	1.75%
LINALOOL	.42%
SABINENE	.30%
OCTANAL	.26%
DECANAL	.20%
GERANIAL	.11%
NONANAL	.07%
NERAL	.03%
VALENCENE	.03%
β-SINENSAL	.03%
α-PINENE	.02%
β-PINENE	.02%

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Sample nature : ESSENTIAL OIL
Botanical species : CITRUS SINENSIS
Reference name : ORANGE SWEET
Batch number : CS201L60001
Part: FRESH FRUIT RIND

Date of reception : 09/23/2016 **Date analysis :** 10/03/2016
Packaging : Transparent flask of 3 ml – ambient temperature
Analysis : GC Classic
Shelf life : 1 year

Comments and conclusions :

⇨ BATCH IN COMPLIANCE WITH THE NORM OF SWEET CITRUS SINENSIS ESSENTIAL OIL NORM ISO 3140 : 2011

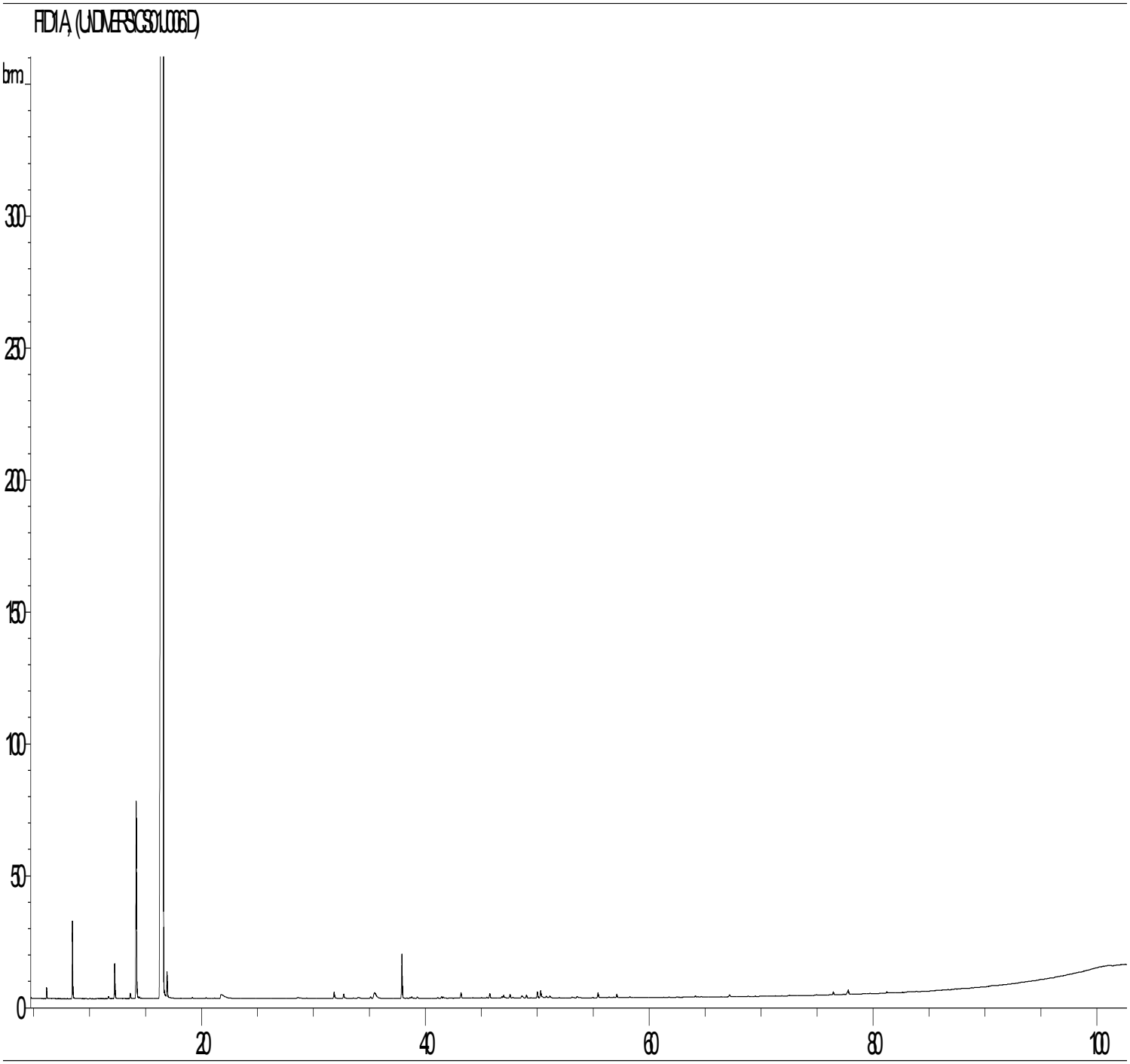
Validated report by : **Daniel DANTIN**

GAS CHROMATOGRAPHY norm NF ISO 11024

Analysis conditions :

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



Identification results 1 – CITRUS SINENSIS BATCH N° CS201L60001

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
1	4,8	ACETONE	0,01		
2	6,2	ETHANOL	0,06		
3	8,4	**α-PINENE**	**0,56**	**0,4 – 0,8**	
4	11,7	**β-PINENE**	**0,02**	**0,02 – 0,15**	
5	12,2	**SABINENE**	**0,30**	**0,2 – 0,8**	
6	13,6	Δ3-CARENE	0,05		
7	14,1	**β-MYRCENE**	**1,75**	**1,5 – 3,5**	
8	14,4	α-PHELLANDRENE	0,02		
9	16,6	**LIMONENE**	**94,78**	**93 - 96**	94,78
10	16,9	β-PHELLANDRENE	0,28		
11	19,2	Trans-β-OCIMENE	0,02		
12	20,3	p-CYMENE	0,01		
13	21,2	TERPINOLENE	0,01		
14	21,7	**OCTANAL**	**0,26**	**0,1 – 0,4**	
15	28,6	**NONANAL**	**0,07**	**0,01 – 0,06**	
16	31,8	Cis-LIMONENE EPOXIDE	0,07		
17	32,7	Trans-LIMONENE EPOXIDE	0,05		
18	32,9	Trans-THUYANOL	0,01		
19	33,5	OCTYL ACETATE	0,01		
20	34,0	CITRONELLAL	0,04		
21	35,1	α-COPAENE	0,02		
22	35,4	**DECANAL**	**0,20**	**0,1 – 0,7**	
23	37,9	**LINALOOL**	**0,42**	**0,15 – 0,7**	0,42
24	38,6	Cis-THUYANOL	0,01		
25	38,8	SESQUITERPENE	0,02		
26	39,3	1-OCTANOL	0,02		
27	41,1	β-ELEMENE	0,01		
28	41,4	β-CUBEBENE	0,02		
29	41,6	β-CARYOPHYLLENE	0,02		
30	43,2	Cis-p-MENTHA-2,8-DIEN-1-OL	0,06		
31	45,7	trans-p-MENTHA-2,8-DIEN-1-OL	0,05		
32	46,8	E-β-FARNESENE	0,01		
33	47,0	**NERAL**	**0,03**	**0,03 – 0,1**	0,03
34	47,5	α-TERPINEOL	0,03		
35	48,5	GERMACRENE D	0,01		
36	48,6	DODECANAL	0,04		
37	49,0	**VALENCENE**	**0,03**	**0,01 – 0,4**	
38	50,0	CARVONE	0,07		
39	50,3	**GERANIAL**	**0,11**	**0,05 – 0,2**	0,11
40	50,8	Trans-ISOPIPERITENOL	0,02		
41	51,2	δ-CADINENE	0,02		
42	53,1	FARNESENE ISOMER	0,02		
43	53,5	PERILLALDEHYDE	0,03		
44	55,4	Trans-CARVEOL	0,06		
45	56,4	PERILLYL ACETATE	0,01		

Identification results 2 – CITRUS SINENSIS BATCH N° CS201L60001

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
46	57,1	Cis-CARVEOL	0,04		
47	64,1	LIMONENE-10-OL	0,01		
48	67,2	CAPRYLIC ACID	0,02		
49	76,4	**β-SINENSAL**	**0,03**	**0,01 – 0,06**	
50	77,7	CAPRIC ACID	0,08		
51	81,2	α-SINENSAL	0,01		
52	105,2	PALMITIC ACID	0,03		
		TOTAL	**99,94**		**95,34**