

German Chamomile

Matricaria recutita

Batch No. UK-59120
 Great Britain

Monoterpenes 3.93%

trans- β -ocimene	2.52
cis- β -ocimene	0.41
limonene	0.36
γ terpinene	0.26
para cymene	0.15
α pinene	0.06
β myrcene	0.05
sabinene	0.04
terpinolene	0.04
α thuyene	0.02
camphene	0.01
α terpinene	0.01

Monoterpenols 0.2%

2,4-decadienol	0.1
linalool	0.05
terpinen-4-ol	0.05

Aldehydes 0.6%

pentadecanal	0.18
nonanal	0.08
octanal	0.08
aliphatic aldehyde	0.07
decanal	0.06
heptanal	0.04
tetradecanal	0.04
hexanal	0.02
isovaleraldehyde	0.02
2-methyl butanal	0.01

Ethers 0.07%

1,8 cineole	0.07
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Ketones 1.72%

artemisia ketone	0.97
6-methyl-5-hepten-2-one	0.05
3 octanone	0.01
3,8-dimethyl-nona-3,8-dien-2-or	0.08
2(3H)-furanone, 5-(2,5-dimethyl)	0.06
β ionone	0.06
unknown	0.07
trimethyl pentadecanone	0.42

Sesquiterpenes 71.52%

(E) β farnesene	46.55
bicyclogermacrene	7.19
(E,E) α farnesene	5.97
germacrene D	5.00
Chamazulene	2.50
α -isocomene	0.58
β caryophyllene	0.36
sesquiterpene	0.34
β selinene	0.28
allo-aromadendrene	0.28
bicycloelemene	0.23
ledene	0.21
α -curcumene	0.18
δ elemene	0.14
aromadendrene	0.14
modhephene	0.14
α humulene	0.11
α -copaene	0.10
cadinene isomer	0.10
dihydrochamazulene isomer	0.10
β elemene	0.09
β isocomene	0.08
sesquiterpene oxide	0.08
γ muurolene	0.07
γ curcumene	0.07
α muurolene	0.07
sesquiterpenic epoxide	0.07
epsilon-cadinene	0.06
γ selinene	0.05
α zingiberene	0.05
δ cadinene	0.05
longipinene	0.04
α -gurjunene	0.04
α cubebene	0.04
α acoradiene	0.04
β 1 cubebene	0.03
α (E) bergamotene	0.03
α -bisabolene	0.03
calamenene	0.03

Sesquiterpenols 19.24%

α bisabolol oxide B	5.79
α -bisabolol oxide A	4.27
α bisabolol oxide A	3.01
spathulenol	1.27
sesquiterpenol	0.93
β eudesmol + sesquisabinene isome	0.61
α -bisabolol	0.55
sesquiphellandrol	0.53
bisabolol C oxide	0.38
bisabolol oxide isomer	0.38
dendrolasin	0.22
santalol isomer	0.19
isospathulenol	0.18
ledol	0.18
sesquiterpenic epoxide	0.17
nerolidol	0.16
globulol	0.09
τ cadinol	0.07
viridiflorol	0.06
germacra-1,5-dien-4-ol	0.06
caryophyllene epoxide	0.04
curzerene	0.03
10-epi- γ -eudesmol	0.03
(E)-pinocarveol	0.02
palustrol	0.02

Esters 0.8%

ethyl 2-methylbutyrate	0.12
aliphatic methyl ester	0.11
lachnophyllum methyl ester	0.10
artemisyil acetate	0.07
isobutyl 2-methylbutyrate	0.05
lavandulyl acetate	0.05
butyl 2-methylbutanoate	0.04
matricaria ester	0.04
(Z) 3-hexenyl isovalerate	0.03
ethyl 3-methylbutyrate	0.03
hexyl butanoate	0.03
hexenylic esters	0.03
methyl salicylate	0.03
aliphatic ester	0.03
neryl methylbutyrate	0.03
ethyl 3-methyl-2-butyrate	0.01

Other	1.79%
unknown	0.44
palmitic acid	0.18
yomogi alcohol	0.15
artemisia alcohol	0.12
2-pentylfuran	0.11
pentacosane	0.11
phytol	0.11
methyl naphthalene	0.1
tricosane	0.09
1-octanol	0.04
tridecane	0.04
pelargonic acid	0.04
dodecane	0.03
heptadiene isomer	0.03
tetradecane	0.03
capric acid	0.03
undecane	0.02
tetradecane	0.02
1hexanol	0.02
myristic acid	0.02
heptacosane	0.02
herniarin	0.02
nonane	0.01
2-nonanol	0.01

CUSTOMER :

**Nature's Gift
316 Old Hickory Blvd East
Madison, TN 37115**

Sample nature : ESSENTIAL OIL
Botanical species : MATRICARIA RECUTITA
Reference name : GERMAN CHAMOMILE
Batch number : GC 20.164
Origin :
Part: FLOWER
Pyrenessences reference : T467

Date of receipt : 26/09/2020 **Date analysis :** 11/10/2020
Packaging : Blue flask of 10 ml – ambient temperature
Analysis : Classic GC
Shelf life : 1 year

Comments and conclusions :

Validated report by :

Daniel DANTIN

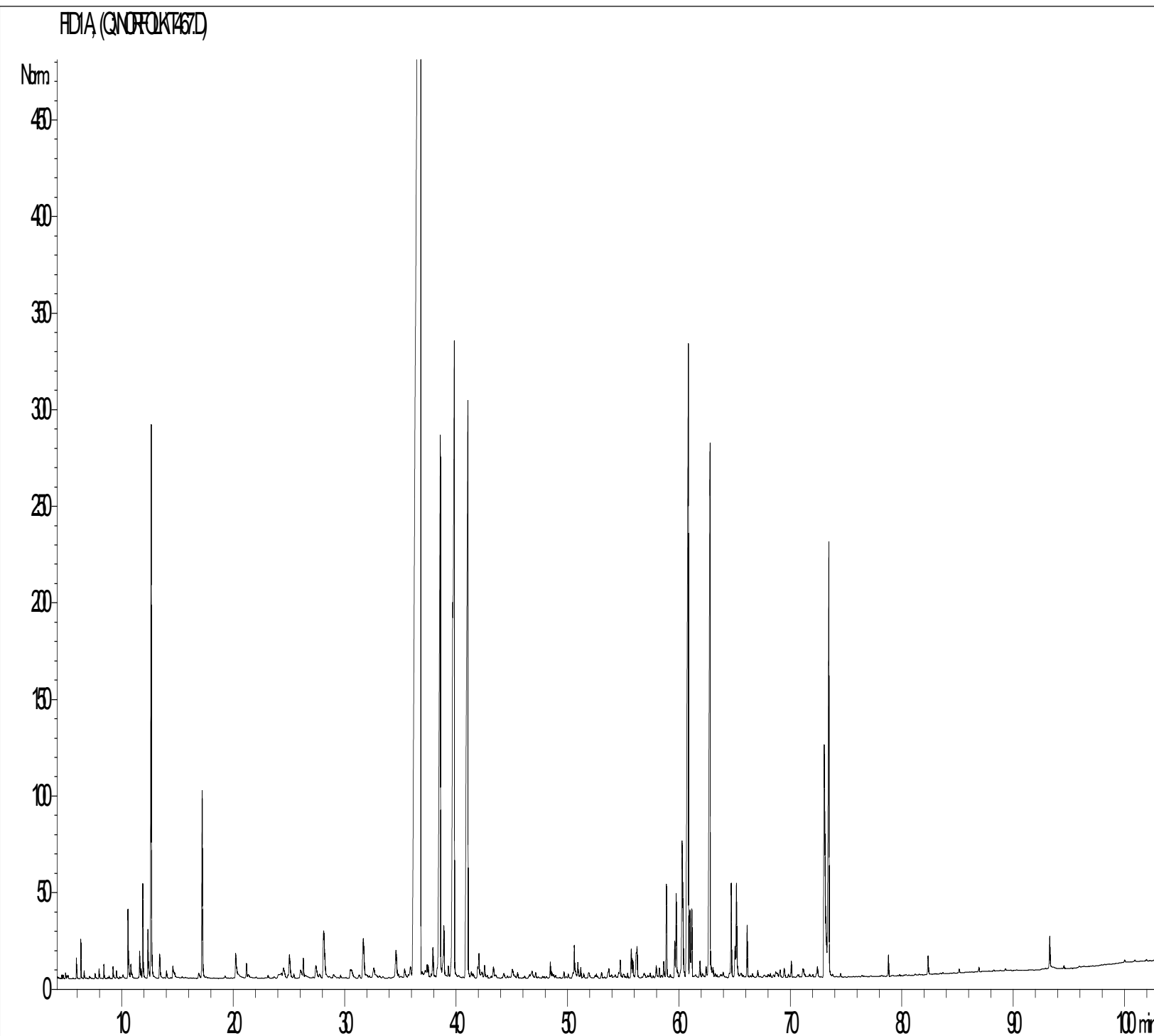


GAS CHROMATOGRAPHY norm NF ISO 11024

Analysis conditions :

CPG 6890 / MS 5973 – Column : VF WAX polar 60 m × 0,25 mm × 0,25 µm
CPG 6890 FID - Column : VF WAX polar 60 m × 0,25 mm × 0,25 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: GERMAN CHAMOMILE BATCH GC 20.164

Peak	RT (min)	Compound name	%	Egyptian Norm	Hungarian Norm
1	4,6	NONANE	0,01		
2	4,7	BUTANAL,2-METHYL-	0,01		
3	4,8	ISOVALERALDEHYDE	0,02		
4	5,9	alpha-PINENE	0,06		
5	6,0	alpha-THUYENE	0,02		
6	6,3	ETHYL 2-METHYLBUTYRATE	0,12		
7	6,6	ETHYL 3-METHYLBUTYRATE	0,03		
8	6,7	CAMPHENE	0,01		
9	7,1	HEXANAL	0,02		
10	7,6	UNDECANE	0,02		
11	7,9	SABINENE	0,04		
12	8,4	ISOBUTYL 2-METHYLBUTYRATE	0,05		
13	9,2	beta-MYRCENE	0,05		
14	9,5	TERPENE ISOMER	0,03		
15	9,8	alpha-TERPINENE	0,01		
16	10,1	HEPTANAL	0,04		
17	10,5	LIMONENE	0,36		
18	10,8	1,8-CINEOLE	0,07		
19	10,9	DODECANE	0,03		
20	11,5	ETHYL 3-METHYL-2-BUTYRATE	0,01		
21	11,6	FURAN 2-PENTYL	0,11		
22	11,7	BUTYL 2-METHYLBUTANOATE	0,04		
23	11,9	Cis-beta-OCIMENE	0,41		
24	12,3	gamma-TERPINENE	0,26		
25	12,6	Trans-beta-OCIMENE	2,52		
26	12,8	3-OCTANONE	0,01		
27	13,4	p-CYMENE	0,15		
28	14,0	TERPINOLENE	0,04		
29	14,6	OCTANAL	0,08		
30	14,8	TRIDECANE	0,04		
31	16,9	5-HEPTEN-2-ONE, 6-METHYL-	0,05		
32	17,2	ARTEMISIA KETONE	0,97		
33	17,6	1-HEXANOL	0,02		
34	20,2	NONANAL	0,08		
35	20,3	HEPTADIENE ISOMER	0,03		
36	20,4	YOMOGI ALCOHOL	0,15		
37	21,2	ARTEMISYL ACETATE	0,07		
38	21,4	HEXYL BUTANOATE	0,03		
39	22,1	HEXENYLIC ESTER	0,01		
40	23,1	HEXENYLIC ESTER	0,02		
41	24,1	alpha-CUBEBENE	0,04		
42	24,2	TETRADECANE	0,03		
43	24,4	LONGIPINENE	0,04		
44	24,5	delta-ELEMENE	0,14		
45	25,0	BICYCLOELEMENE	0,23		

Identification results 2: GERMAN CHAMOMILE BATCH GC 20.164

Peak	RT (min)	Compound name	%	Egyptian Norm	Hungarian Norm
46	25,4	Cis-3-HEXENYL VALERATE	0,03		
47	26,0	alpha-COPAENE	0,10		
48	26,2	DECANAL	0,06		
49	26,3	ARTEMISIA ALCOHOL	0,12		
50	27,4	MODHEPHENE	0,14		
51	27,8	alpha-GURJUNENE	0,04		
52	28,1	alpha-ISOCOMENE Mw=204	0,58		
53	28,6	beta1-CUBEBENE	0,03		
54	29,0	LINALOOL	0,05		
55	29,6	1-OCTANOL	0,04		
56	30,5	epsilon-CADINENE	0,06		
57	30,6	beta-ISOCOMENE	0,08		
58	30,7	SESQUITERPENE	0,03		
59	31,3	alpha-trans-BERGAMOTENE	0,03		
60	31,6	beta-ELEMENE	0,09		
61	31,7	beta-CARYOPHYLLENE	0,36		
62	31,9	TERPINENE-4-OL	0,05		
63	32,2	SESQUITERPENE	0,02		
64	32,6	AROMADENDRENE	0,14		
65	32,8	LAVANDULYL ACETATE	0,05		
66	34,6	ALLO-AROMADENDRENE	0,28		
67	34,8	Trans-PINOCARVEOL	0,02		
68	35,4	NONA-3,8-DIEN-2-ONE, 3,8-DIMETHYL-	0,08		
69	35,7	1-NONANOL	0,01		
70	35,9	alpha-HUMULENE	0,11		
71	36,8	E(trans)-beta-FARNESENE	46,55	15 - 35	20 - 51
72	36,9	gamma-SELINENE	0,05		
73	37,1	SESQUITERPENE	0,04		
74	37,2	alpha-ACORADIENE	0,04		
75	37,3	gamma-MUUROLENE	0,07		
76	37,5	gamma-CURCUMENE	0,07		
77	37,7	SESQUITERPENE	0,01		
78	37,9	LEDENE	0,21		
79	38,5	GERMACRENE D	5,00		
80	38,7	CADINENE ISOMER	0,10		
81	38,8	beta-SELINENE	0,28		
82	39,2	alpha-ZINGIBERENE	0,05		
83	39,5	alpha-MUUROLENE	0,07		
84	39,7	BICYCLOGERMACRENE	7,19		
85	40,9	E,E-alpha-FARNESENE	5,97		
86	41,3	delta-CADINENE	0,05		
87	41,5	METHYL SALICYLATE	0,03		
88	41,9	2(3H)-FURANONE, 5-(2,5-DIMTHYLPHENYL)-4-METHYL-	0,06		
89	42,0	alpha-CURCUMENE	0,18		
90	42,2	alpha-BISABOLENE	0,03		

Identification results 3: GERMAN CHAMOMILE BATCH GC 20.164

Peak	RT (min)	Compound name	%	Egyptian Norm	Hungarian Norm
91	42,3	COMPOUND Mw=220	0,04		
92	42,5	SESQUITERPENE Mw=202	0,09		
93	43,3	NAPHTALENE METHYL COMPOUND	0,10		
94	44,2	SESQUITERPENE Mw=202	0,04		
95	45,1	2,4-DECADIENOL	0,10		
96	45,5	CALAMENENE	0,03		
97	46,6	ALIPHATIC ESTER	0,03		
98	46,8	AROMATIC COMPOUND	0,09		
99	47,1	CURZERENE	0,03		
100	48,5	SESQUIROSEFURAN ISOMER Mw=218	0,04		
101	48,6	AROMATIC COMPOUND	0,02		
102	48,7	SESQUITERPENOL	0,03		
103	49,6	NERYL METHYLBUTYRATE	0,03		
104	50,0	PALUSTROL	0,02		
105	50,4	TETRADECANAL	0,04		
106	50,6	DENDROLASIN	0,22		
107	50,9	SESQUITERPENIC COMPOUND	0,11		
108	51,2	beta-IONONE	0,06		
109	51,9	KETONIC COMPOUND Mw=200	0,07		
110	52,6	CURCUMENIC COMPOUND	0,03		
111	53,1	CARYOPHYLLENE EPOXIDE	0,04		
112	53,6	SESQUITERPENOL	0,10		
113	54,7	SESQUITERPENIC EPOXIDE	0,17		
114	55,7	LEDOL	0,18		
115	55,9	SESQUITERPENOL	0,11		
116	56,2	PENTADECANAL	0,18		
117	56,3	NEROLIDOL	0,16		
118	56,9	GERMACRA-1,5-DIEN-4-OL	0,06		
119	57,9	GLOBULOL	0,09		
120	58,3	VIRIDIFLOROL	0,06		
121	58,5	ALIPHATIC ALCOHOL	0,02		
122	58,6	DIHYDROCHAMAZULEN ISOMER Mw=186	0,10		
123	58,9	SESQUIPELLANDROL ISOMER	0,53		
124	59,2	10-epi-gamma-EUDESMOL	0,03		
125	59,6	SANTALOL ISOMER	0,19		
126	59,7	SESQUITERPENOL	0,47		
127	59,8	SESQUITERPENOL	0,03		
128	60,1	SESQUITERPENOL	0,05		
129	60,3	SPATHULENOL	1,27		
130	60,4	BISABOLOL C OXIDE	0,38		
131	60,8	alpha-BISABOLOL OXIDE B	5,79	2 - 8	2 - 21
132	61,1	PENTADECANONE TRIMETHYL	0,42		
133	61,9	BISABOLOL OXIDE ISOMER	0,11		
134	62,1	PERLARGONIC ACID	0,04		
135	62,4	T-CADINOL	0,07		

Identification results 4: GERMAN CHAMOMILE BATCH GC 20.164

Peak	RT (min)	Compound name	%	Egyptian Norm	Hungarian Norm
136	62,8	BISABOLOL OXIDE A	4,27	2 - 6,5	1 - 4
137	63,0	SESQUITERPENE OXIDE	0,08		
138	63,3	SESQUITERPENOL	0,03		
139	63,7	SESQUITERPENOL	0,04		
140	64,0	LACHNOPHYLLUM METHYL ESTER	0,05		
141	64,7	alpha-BISABOLOL	0,55	1 - 10	15 - 40
142	65,0	ISOSPATHULENOL	0,18		
143	65,1	beta-EUDESMOL + SESQUISABINENE ISOMER	0,61		
144	65,6	LACHNOPHYLLUM METHYL ESTER	0,05		
145	66,1	BISABOLOL OXIDE ISOMER	0,27		
146	66,6	CAPRIC ACID	0,03		
147	67,1	MATRICARIA ESTER Mw=174	0,04		
148	68,2	ALIPHATIC ALCOHOL	0,02		
149	68,5	SESQUITERPENIC EPOXIDE	0,07		
150	69,1	AROMATIC COMPOUND	0,06		
151	69,5	ALIPHATIC ALDEHYDE	0,07		
152	70,0	TRICOSANE	0,09		
153	71,1	AROMATIC COMPOUND	0,12		
154	72,4	ALIPHATIC METHYL ESTER	0,11		
155	73,0	CHAMAZULEN	2,50	2 - 5	5 - 22
156	73,5	alpha-BISABOLOL OXIDE A	3,01	35 - 40	2 - 27
157	78,8	PENTACOSANE	0,11		
158	82,4	PHYTOL	0,11		
159	85,2	MYRISTIC ACID	0,02		
160	86,9	HEPTACOSANE	0,02		
161	93,3	PALMITIC ACID	0,18		
162	95,5	HERNIARIN	0,02		
		TOTAL	99,81		