Kadaňská 2525, 438 01 Žatec, Czech Republic

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X542/2019 Sample number: X542 Page: 1/2

Customer: Data provided by customer:

PETROVEC DOO

CHINOOK

Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Parametr	Unit	Result	Expanded uncertainty	Method	The scope of accreditation Yes/No
HSI	-	0,261	-	SOP 9 (EBC 7.12)	no
Alpha acids	% hm.	12,78	3,5 % rel.		yes
Beta acids	% hm.	2,93	3,5 % rel.	SOP 5 (EBC 7.7)	yes
cohumulone	% rel.	27,5	-		yes
colupulone	% rel.	53,2	-		yes

Notes:

- ☐ The results relate to the sample as received by the laboratory.
- ☐ The expanded measurement uncertainty is calculated using the coefficient k = 2 and corresponds appr. to the level of significance 95 %.
- ☐ The analysis results relate only to the test samples.
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- □ Laboratory activities were performed at the laboratory address.

Analysed by: P. Vondráčková, K. Krofta Approved by: Ing. Karel Krofta Ph.D.

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X542/2019 Sample number: X542 Page: 2/2

Customer: Data provided by customer:

CHINOOK

PETROVEC DOO Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Hop oils

Parametr	Unit	Result	Expanded uncertainty	Method (EBC 7.12)	The scope of accreditation Yes/No
Total oil	g/100 g	1,36	_	SOP 7	no
beta pinene	% rel.	0,50	_	SOP 7	no
myrcene	% rel.	20,1	_	SOP 7	no
limonene	% rel.	0,17	_	SOP 7	no
linalool	% rel.	0,27	_	SOP 7	no
geraniol	% rel.	0,22	_	SOP 7	no
2-undecanone	% rel.	0,42	_	SOP 7	no
caryophyllene	% rel.	11,8	_	SOP 7	no
farnesene	% rel.	< 0,10	_	SOP 7	no
humulene	% rel.	22,6	_	SOP 7	no
selinenes	% rel.	5,88	_	SOP 7	no
caryophyllenepoxide	% rel.	0,05	_	SOP 7	no
humulenepoxide II	% rel.	0,13	_	SOP 7	no

Notes:

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X543/2019 Sample number: X543 Page: 1/2

Customer: Data provided by customer:

PETROVEC DOO

CASCADE

Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Parametr	Unit	Result	Expanded uncertainty	Method	The scope of accreditation Yes/No
HSI	-	0,266	-	SOP 9 (EBC 7.12)	no
Alpha acids	% hm.	7,94	3,5 % rel.		yes
Beta acids	% hm.	5,11	3,5 % rel.	SOP 5 (EBC 7.7)	yes
cohumulone	% rel.	29,4	-		yes
colupulone	% rel.	50,1	-		yes

Notes:

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Analysis report

Protocol number: X543/2019 Sample number: X543 Page: 2/2

Customer: Data provided by customer:

CASCADE

PETROVEC DOO Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Hop oils

Parametr	Unit	Result	Expanded uncertainty	Method (EBC 7.12)	The scope of accreditation Yes/No
Total oil	g/100 g	1,03	_	SOP 7	no
beta pinene	% rel.	1,05	_	SOP 7	no
myrcene	% rel.	41,4	_	SOP 7	no
limonene	% rel.	0,34	_	SOP 7	no
linalool	% rel.	0,38	_	SOP 7	no
geraniol	% rel.	0,09	_	SOP 7	no
2-undecanone	% rel.	0,13	_	SOP 7	no
caryophyllene	% rel.	7,91	_	SOP 7	no
farnesene	% rel.	6,46	_	SOP 7	no
humulene	% rel.	16,7	_	SOP 7	no
selinenes	% rel.	2,81	_	SOP 7	no
caryophyllenepoxide	% rel.	0,13	_	SOP 7	no
humulenepoxide II	% rel.	0,22	_	SOP 7	no

Notes:

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X545/2019 Sample number: X545 Page: 1/2

Customer: Data provided by customer:

PETROVEC DOO

CENTENNIAL

Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Parametr	Unit	Result	Expanded uncertainty	Method	The scope of accreditation Yes/No
HSI	-	0,277	-	SOP 9 (EBC 7.12)	no
Alpha acids	% hm.	9,93	3,5 % rel.		yes
Beta acids	% hm.	3,66	3,5 % rel.	SOP 5 (EBC 7.7)	yes
cohumulone	% rel.	25,8	-		yes
colupulone	% rel.	50,1	-		yes

Notes:

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Analysis report

Protocol number: X545/2019 Sample number: X545 Page: 2/2

Customer: Data provided by customer:

CENTENNIAL

PETROVEC DOO Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Hop oils

Parametr	Unit	Result	Expanded uncertainty	Method (EBC 7.12)	The scope of accreditation Yes/No
Total oil	g/100 g	2,31	_	SOP 7	no
beta pinene	% rel.	1,33	_	SOP 7	no
myrcene	% rel.	52,3	_	SOP 7	no
limonene	% rel.	0,43	_	SOP 7	no
linalool	% rel.	0,68	_	SOP 7	no
geraniol	% rel.	0,41	_	SOP 7	no
2-undecanone	% rel.	0,03	_	SOP 7	no
caryophyllene	% rel.	7,13	_	SOP 7	no
farnesene	% rel.	< 0,10	_	SOP 7	no
humulene	% rel.	13,8	_	SOP 7	no
selinenes	% rel.	0,43	_	SOP 7	no
caryophyllenepoxide	% rel.	0,10	_	SOP 7	no
humulenepoxide II	% rel.	0,15	_	SOP 7	no

Notes:

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X546/2019 Sample number: X546 Page: 1/2

Customer: Data provided by customer:

PETROVEC DOO

CTZ (COLUMBUS)

Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Parametr	Unit	Result	Expanded uncertainty	Method	The scope of accreditation Yes/No
HSI	-	0,251	-	SOP 9 (EBC 7.12)	no
Alpha acids	% hm.	12,91	3,5 % rel.		yes
Beta acids	% hm.	3,60	3,5 % rel.	SOP 5 (EBC 7.7)	yes
cohumulone	% rel.	23,7	-		yes
colupulone	% rel.	51,3	-		yes

Notes:

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X546/2019 Sample number: X546 Page: 2/2

Customer: Data provided by customer:

CTZ (COLUMBUS)

Petrovec DOO Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Hop oils

Parametr	Unit	Result	Expanded uncertainty	Method (EBC 7.12)	The scope of accreditation Yes/No
Total oil	g/100 g	1,35	_	SOP 7	no
beta pinene	% rel.	0,96	_	SOP 7	no
myrcene	% rel.	40,2	_	SOP 7	no
limonene	% rel.	0,35	_	SOP 7	no
linalool	% rel.	0,50	_	SOP 7	no
geraniol	% rel.	0,19	_	SOP 7	no
2-undecanone	% rel.	0,10	_	SOP 7	no
caryophyllene	% rel.	10,7	_	SOP 7	no
farnesene	% rel.	< 0,10	_	SOP 7	no
humulene	% rel.	14,3	_	SOP 7	no
selinenes	% rel.	3,79	_	SOP 7	no
caryophyllenepoxide	% rel.	0,14	_	SOP 7	no
humulenepoxide II	% rel.	0,16	_	SOP 7	no

Notes:

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X547/2019 Sample number: X547 Page: 1/2

Customer: Data provided by customer:

PETROVEC DOO ROBUSTA

Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Parametr	Unit	Result	Expanded uncertainty	Method	The scope of accreditation Yes/No
HSI	-	0,251	-	SOP 9 (EBC 7.12)	no
Alpha acids	% hm.	6,58	3,5 % rel.		yes
Beta acids	% hm.	3,66	3,5 % rel.	SOP 5 (EBC 7.7)	yes
cohumulone	% rel.	33,5	-		yes
colupulone	% rel.	56,2	-		yes

Notes:

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Testing laboratory Nr. 1749 accredited by CAI according to ČSN EN ISO/IEC 17025:2018

Analysis report

Protocol number: X547/2019 Sample number: X547 Page: 2/2

Customer: Data provided by customer:

ROBUSTA

Petrovec DOO Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Hop oils

Parametr	Unit	Result	Expanded uncertainty	Method (EBC 7.12)	The scope of accreditation Yes/No
Total oil	g/100 g	0,97	_	SOP 7	no
beta pinene	% rel.	0,68	_	SOP 7	no
myrcene	% rel.	29,5	_	SOP 7	no
limonene	% rel.	0,24	_	SOP 7	no
linalool	% rel.	0,48	_	SOP 7	no
geraniol	% rel.	0,46	_	SOP 7	no
2-undecanone	% rel.	0,10	_	SOP 7	no
caryophyllene	% rel.	15,8	_	SOP 7	no
farnesene	% rel.	< 0,10	_	SOP 7	no
humulene	% rel.	29,5	_	SOP 7	no
selinenes	% rel.	4,04	_	SOP 7	no
caryophyllenepoxide	% rel.	0,25	_	SOP 7	no
humulenepoxide II	% rel.	0,36	_	SOP 7	no

Notes:

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Analysis report

Protocol number: X548/2019 Sample number: X548 Page: 1/2

Customer: Data provided by customer:

PETROVEC DOO

BAČKA

Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Parametr	Unit	Result	Expanded uncertainty	Method	The scope of accreditation Yes/No
HSI	-	0,264	-	SOP 9 (EBC 7.12)	no
Alpha acids	% hm.	6,70	3,5 % rel.		yes
Beta acids	% hm.	3,47	3,5 % rel.	SOP 5 (EBC 7.7)	yes
cohumulone	% rel.	33,2	-		yes
colupulone	% rel.	56,2	-		yes

Notes:

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Analysis report

Protocol number: X548/2019 Sample number: X548 Page: 2/2

Customer: Data provided by customer:

BAČKA

PETROVEC DOO Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Hop oils

Parametr	Unit	Result	Expanded uncertainty	Method (EBC 7.12)	The scope of accreditation Yes/No
Total oil	g/100 g	0,84	_	SOP 7	no
beta pinene	% rel.	0,81	_	SOP 7	no
myrcene	% rel.	34,4	_	SOP 7	no
limonene	% rel.	0,27	_	SOP 7	no
linalool	% rel.	0,53	_	SOP 7	no
geraniol	% rel.	0,50	_	SOP 7	no
2-undecanone	% rel.	0,12	_	SOP 7	no
caryophyllene	% rel.	14,4	_	SOP 7	no
farnesene	% rel.	< 0,10	_	SOP 7	no
humulene	% rel.	26,2	_	SOP 7	no
selinenes	% rel.	3,07	_	SOP 7	no
caryophyllenepoxide	% rel.	0,27	_	SOP 7	no
humulenepoxide II	% rel.	0,35	_	SOP 7	no

Notes:

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Analysis report

Protocol number: X549/2019 Sample number: X549 Page: 1/2

Customer: Data provided by customer:

AROMA

PETROVEC DOO

Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Parametr	Unit	Result	Expanded uncertainty	Method	The scope of accreditation Yes/No
HSI	-	0,256	-	SOP 9 (EBC 7.12)	no
Alpha acids	% hm.	7,84	3,5 % rel.		yes
Beta acids	% hm.	3,93	3,5 % rel.	SOP 5 (EBC 7.7)	yes
cohumulone	% rel.	32,7	-		yes
colupulone	% rel.	55,9	-		yes

Notes:

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Analysis report

Protocol number: X549/2019 Sample number: X549 Page: 2/2

Customer: Data provided by customer:

AROMA

PETROVEC DOO Maršala Tita 14

21470 Bački Petrovac, SERBIA

Sample delivered: 25.9.2019 Sample analysed: 26.-27.9.2019 Subject of analysis: raw hops

Hop oils

Parametr	Unit	Result	Expanded uncertainty	Method (EBC 7.12)	The scope of accreditation Yes/No
Total oil	g/100 g	1,35	_	SOP 7	no
beta pinene	% rel.	0,73	_	SOP 7	no
myrcene	% rel.	34,2	_	SOP 7	no
limonene	% rel.	0,25	_	SOP 7	no
linalool	% rel.	0,55	_	SOP 7	no
geraniol	% rel.	0,58	_	SOP 7	no
2-undecanone	% rel.	0,11	_	SOP 7	no
caryophyllene	% rel.	14,0	_	SOP 7	no
farnesene	% rel.	< 0,10	_	SOP 7	no
humulene	% rel.	26,5	_	SOP 7	no
selinenes	% rel.	2,95	_	SOP 7	no
caryophyllenepoxide	% rel.	0,19	_	SOP 7	no
humulenepoxide II	% rel.	0,27	_	SOP 7	no

Notes:

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