 Analyses for industry and science	Al. Zwycięstwa 96/98; 81-451 Gdynia office@spark-lab.pl www.spark-lab.pl ; +48 782 811 350 NIP: 586 228 03 65	Report number: 2020/08/0013/005/EN	
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ANALYSIS REPORT

Particulars of the Client	Description	Order number
EMEN MACIEJ NIEMCZYK ul. Luboszycka 36 45-215 Opole	Quantitative determination of CBDV, CBDVA, CBG, CBD, THCV, CBDA, CBGA, CBN, delta9-THC, delta8-THC, THCVA, CBC, THCA, CBCA in oil sample.	ZO 2020/08/000012

The analyses have been conducted by:
 Laboratorium Analiz Chemicznych Spark-Lab Sp. z o.o.
 Research and Development Dept.

Date of commencement of analyses	14.08.2020
Date of completion of the analyses	20.08.2020

Sample identification:

Sample signature	Sample designation	Sample collection method	Additional information	
2020/08/0013/005	5% CBD&CBG Amber Oil 06/2021	Sample collected and delivered by the client	Date of delivery:	07.08.2020
			Object of analysis:	brown oil
			Sample evaluation:	unreseededly

Results:

Sample signature	Subject of determination	Method identification*	The result of the analysis	Uncertainty	Unit
2020/08/0013/005	CBD	modified SL/2019/036, ed. 2 of 14.08.2020, NA	2,7	0,3	%
	CBDA		< 0,25	0,02	
	CBDV		0,022	0,006	
	CBDVA		< 0,005	0,002	
	CBG		3,1	0,8	
	CBGA		< 0,005	0,002	
	THCV		< 0,004	0,001	
	THCVA		not analysed		
	CBN		< 0,013	0,003	
	Δ8-THC		< 0,005	0,002	
	Δ9-THC		0,052	0,012	
	THCA		< 0,005	0,002	
	CBC		0,081	0,019	
	CBCA		< 0,005	0,002	
	Σ CBD		2,7	0,3	
	Σ THC		0,052	0,012	
Σ CBG	3,1	0,8			

* Determination method: A-accredited, NA-non-accredited, AS-by accredited subcontractor, NAS-not accredited by the subcontractor.

Supplements, method deviations:

- Matrix of analysed sample was different than sample matrix described in SL/2019/036 ed. 2 of 14.08.2020.
- Method SL/2019/036 ed. 2 of 14.08.2020 was expanded with extra analytes: CBC, CBCA.
- Determination of THCVA was not possible due to high CBD content.

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Additional information:

Abbreviations and applied formulas for the calculation of the sum:

- | | |
|---------------------------------------|---------------------------------------|
| CBD – Cannabidiol | CBDA – Cannabidiolic acid |
| CBG – Cannabigerol | CBGA – Cannabigerolic acid |
| CBDV – Cannabidivarin | CBDVA –Cannabidivarinic acid |
| CBN – Cannabinol | THCA – Tetrahydrocannabinolic acid |
| Δ8-THC – Delta-8-tetrahydrocannabinol | Δ9-THC – Delta-9-tetrahydrocannabinol |
| THCV – Tetrahydrocannabivarin | THCVA – Tetrahydrocannabivarinic acid |
| CBC – Cannabichromene | CBCA – Cannabichromenic acid |

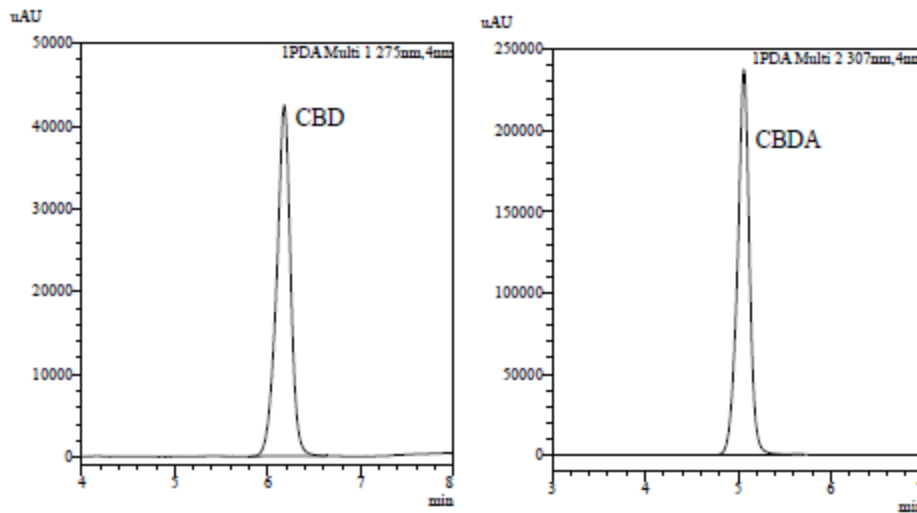
$\Sigma\text{THC} = \% \text{THC} + (\% \text{THCA} \times 0,877)$

$\Sigma\text{CBD} = \% \text{CBD} + (\% \text{CBDA} \times 0,877)$

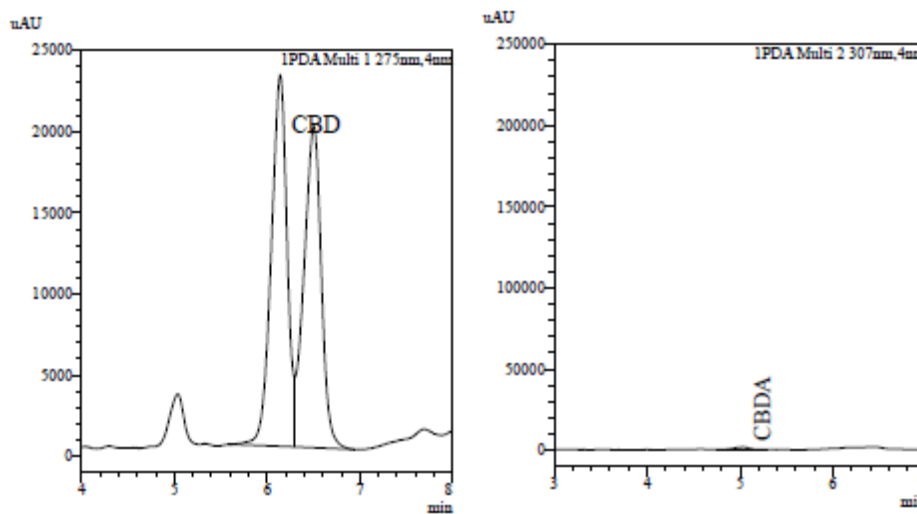
$\Sigma\text{CBG} = \% \text{CBG} + (\% \text{CBGA} \times 0,878)$

Chromatograms:

1. Chromatograms for CBD and CBDA standards (100 ppm, PDA detector)

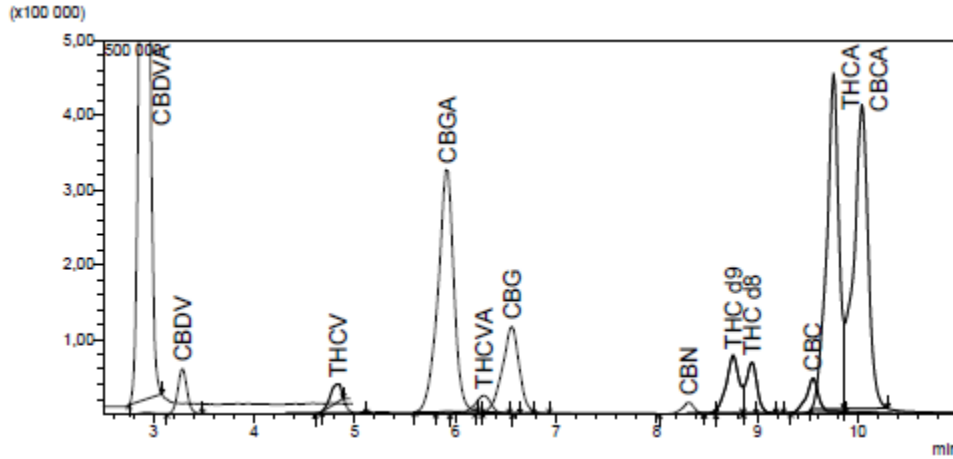


2. Chromatograms for CBD and CBDA in sample 2020/08/0013/005 (PDA detector)

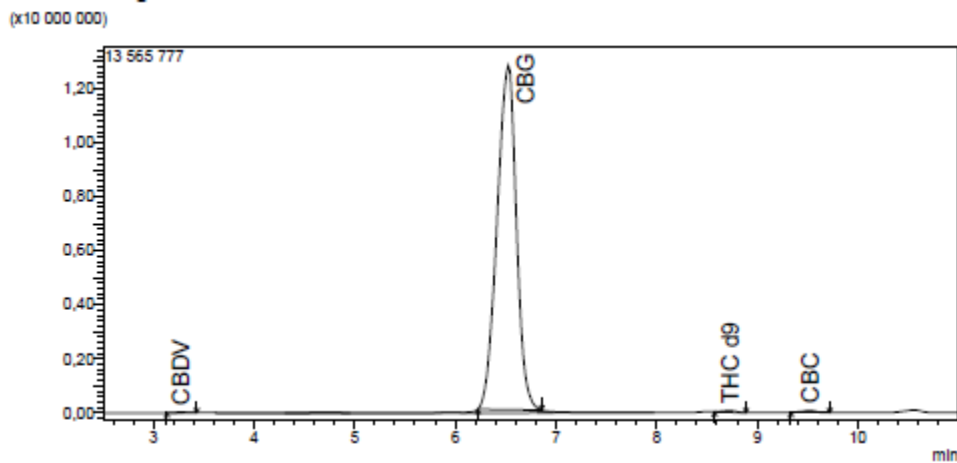


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3. Chromatogram for CBDV, CBDVA, CBGA, THCVA, CBN, Δ9-THC, Δ8-THC, CBC, THCA, CBCA (1 ppm), CBG, THCV (0,8 ppm) standards (MS detector)



4. MS chromatogram for sample 2020/08/0013/005



**Approved of the results
and report**

END OF REPORT

The laboratory gives measurement uncertainty when it is relevant to the validity of the analyses result or for compliance with the specified limit values and at the Client's request. The report may not be published, in whole or in part, without the written consent of Laboratorium Analiz Chemicznych Spark-Lab Sp. z o.o. The report may not be reproduced or distributed, in part, without the prior written permission of the Laboratorium Analiz Chemicznych Spark-Lab Sp. z o.o. The obtained result applies only to the tested (collected and delivered by the client) samples. The laboratory is not responsible for the collection and transport of the sample if the sample has been collected and provided by the Client. The tests results do not include the sampling stage.