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Person in charge: Thomas Gronewold

Report date: 25/04/2024

Certificate of analysis: AR-733-2024-00078233-01

Sample code: 733-2024-00078233

Sample description	Dragon Cinnamon Ground 60 Mesh Organic 2.5% VO
Number of sample containers	3
Total Weight	367g
Sample reception date	22/04/2024
Start / end of analyses	23/04/2024 / 25/04/2024
Reception temperature	Room Temperature
Delivered by	Campus Kurier
Packaging type	plastic bag, sealed

Sample information provided by the customer

Customer reference	DRAG60O
Lot-no.	24002037
Best before date	April 16, 2026
Project name	SO-2400603
Ordered by	Results
Submitted by	Anggita Rianti
Physical sample number	1

TEST RESULTS

Sample Analytical Portion

Physical-chemical analysis

Parameter	Unit	Result	LOQ
J1001-8 Sample preparation (#)			
Method: DIN EN 13805 (2014-12), mod., CON-PV 00001 (2023-09), Digestion (microwave)			
Modification: extension of scope for feed, tobacco and tobacco products; direct digestion			
Sample preparation		done	
J8306-5 Lead (ICP-MS, food) (#)			
Method: DIN EN 15763:2010 (2010-04), mod., CON-PV 01274 (2023-09), ICP-MS			
Modification: incl. ICP-MS/MS, extension of the analysis parameters, extension of the application scope to feed, tobacco and tobacco products			
Lead (Pb)	mg/kg	0.09 ± 0.04	0.05

The results of the examination refer exclusively to the checked samples. Any publication of this report requires written permission. An excerpt publication is not allowed. Sample data provided by the customer may have an influence on the validity of the test results and the assessment of results.

Physical-chemical analysis

Parameter	Unit	Result	LOQ
JCMPS-9 Mineral oil (MOSH, POSH, MOAH) (#)			
Method: Internal Method, CON-PV 01317 (2023-08), LC-GC-FID			
MOSH/POSH (saturated, short chain) C10-16	mg/kg	< 2.0	2
MOSH/POSH (saturated, medium ch.) C17-20	mg/kg	< 2.0	2
MOSH/POSH (saturated, longer chain) C20-35	mg/kg	2.6 ± 1.2	2
MOSH/POSH (sum, calculated) C10-35	mg/kg	2.6 ± 1.2	2
MOSH/POSH (saturated, total) C10-62	mg/kg	3.4 ± 1.4	2
MOSH/POSH detected in the range of		C16-C50	
MOAH (aromatic) C10-16	mg/kg	< 0.50	0.5
MOAH (aromatic hydrocarbons) C16-35	mg/kg	< 0.50	0.5
MOAH (aromatic, total) C10-62	mg/kg	< 0.50	0.5
MOAH detected in the range of		-	
JK1AW-2[1] Water activity (Novasina) (#)			
Method: NMKL No. 168:2001, PV 00451, Hygrometry			
Water activity (25 °C)		0.55 ± 0.02	0.11

#: The performing laboratory is accredited for this test.

1) The determination has been outsourced to Eurofins Analytik GmbH, Germany

LOQ: limit of quantification
LOD: limit of detection
result +/- extended measurement uncertainty (95%; k=2), sampling not included

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Place of execution: Hamburg, Place of jurisdiction: Hamburg
Amtsgericht Hamburg HRB 106641
General Managers: Dr. Jan Sebastian Mänz

UniCredit Bank AG
IBAN DE21207300177000001850
BIC/SWIFT-Code HYVEDEMME17
VAT Number: DE263765651

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Sample comment

Mineral oil residues:
Analysis:
The sample was analyzed using a validated LC-GC-FID method on the content of saturated (MOSH and MOSH-analogues) and aromatic (MOAH) hydrocarbons.

Comments on the result:
MOSH and MOSH-analogues (e.g. POSH, PAO) as well as MOAH are mixtures of hydrocarbons which are chemically and structurally closely related. An analytical separation of the mixtures is not possible. An identification of the source of contamination often is possible via interpretation of the obtained chromatograms.

Legal background:
There are currently no legally binding limit values for the assessment of mineral oil residues in food.
The substance mixture of aromatic MOAHs contains potentially carcinogenic substances. The presence of MOAH is of potential concern according to EFSA.

According to a statement of the European Commission (SCoPAFF) from 19/10/2022, the following max. LOQs for the sum MOAH ≥C10 to ≤C50 were established for the official food control. Products with higher findings of MOAH should be withdrawn and, if necessary, recalled from the market on basis of REG 178/2002 Art 14.
· 0.5 mg/kg for dry foods with low fat/oil content (≤ 4% fat/oil)
· 1 mg/kg for foods with higher fat/oil content (> 4% fat/oil, ≤ 50% fat/oil)
· 2 mg/kg for fats/oils or foods with >50% fat/oil

For MOSH and MOSH analogues in the range C10 to C50, German Benchmark levels exist for individual food categories between 4 and 13 mg/kg as well as 22 mg/kg milk fat according to Lebensmittelverband/LAV.
For MOSH from the source of food grade quality, highly viscous white oils 95% > C25 applies an ADI of 12 mg/kg body weight acc. to EFSA Opinion 2012 / ASN panel.

Comments on the source of contamination:
Based on the evaluated pattern of the chromatogram, the source of contamination potentially originates from the following:

· **The source of contamination could not be concluded.**

Signature:

Thomas Gronewold

Analytical Service Manager (Dr. Thomas M. A. Gronewold)

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