Quality Control Certificate

Product:	**Alumina Column**
Product No.:	**15433**
Lot No.:	**717140**

Storage Recommendations: **Store the column at room temperature below 25°C**

Description: The Alumina Column is part of a 3-column setup for the sample cleanup of environmental-, food- / feed- and similar matrices. It is designed for the analysis of polychlorinated dibenzo-p-dioxins (PCDD), polychlorinated dibenzofurans (PCDF) and polychlorinated biphenyl (PCB) congeners with the DEXTech systems from LCTech GmbH

Quality Control Release Inspection and Test Specification

Test Procedure: A solvent blank, spiked with quantification standard has been cleaned on a DEXTech Plus system, spiked with recovery standard, evaporated via D-EVA and has been quantified with a HRGC/HRMS DFS from Thermo Fisher Scientific at a resolution of R > 10000.

Results Blank Value:

PCDD/F-TEQ:	0,36	pg/column
	(crit: < 0,7	pg/column)
dl-PCB-TEQ:	0,05	pg/column
	(crit: < 0,05	pg/column)
Sum Indikator PCB:	21,46	pg/column
	(crit: < 100	pg/column)

Results Recoveries:

PCDD/F	95	to	119	%	(crit: 70 to 120)
PCB	91	to	106	%	(crit: 70 to 120)

This is to certify that the 15433, Lot 717140, passed the required test specifications and is released for sale.

date: 23.08.2022   sign.: *T. Kehemeir*

The company LCTech GmbH is certified according to ISO 9001:2015

DEKRA Certification

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Hazards:	NOT FOR HUMAN OR DRUG USE!
	The Alumina Column is designed and prepared for usage with the Universal/Standard/Smart and Carbon Column from LCTech and for laboratory use only. This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion, all procedures should be carried out with suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed according to national and regional regulations.
Quality Control:	All ingredients are traceable to certified lots of our supplier. In addition, any ingredient with a new lot will be checked on contamination and efficiency before releasing for production. Monitoring the ongoing production, several columns are chosen at random day for analysis to check on contamination and efficiency.
Quality Management:	This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)
Documentation / Data Attached:	Table 1 & 2: Blank values of PCDD/F and PCB Table 3 & 4: 13C-Recoveries of PCDD/F and PCB
Analytics:	All the columns (n>5) have to perform a clean-up of a solvent blank (10 mL n-hexane), spiked with a 13C - labelled quantifier-standard solution with a single column method onto a DEXTech Plus system. The fractions 1 (PCB) and 2 (PCDD/F) are spiked with 13C - labelled recovery- standard solutions and evaporated with the D-EVA vacuum centrifuge. The extracts are measured with a HRMS-DFS from Thermo Fisher Scientific with a resolution of R > 10000. The HRGCs are equipped with 60 m DB5 MS columns. For PCDD/F 5µL are injected via PTV, for PCB 2µL via SSL.
Remarks:	n/a

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Results:

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,09
1,2,3,7,8-PeCDF	0,13
2,3,4,7,8-PeCDF	0,12
1,2,3,4,7,8-HxCDF	0,067
1,2,3,6,7,8-HxCDF	0,082
2,3,4,6,7,8-HxCDF	0,07
1,2,3,7,8,9-HxCDF	0,05
1,2,3,4,6,7,8-HpCDF	0,11
1,2,3,4,7,8,9-HpCDF	0,11
OCDF	0,51
2,3,7,8-TCDD	0,12
1,2,3,7,8-PeCDD	0,12
1,2,3,4,7,8-HxCDD	<0,027
1,2,3,6,7,8-HxCDD	0,22
1,2,3,7,8,9-HxCDD	0,16
1,2,3,4,6,7,8-HpCDD	0,15
OCDD	0,42

TEQ (WHO 2005)	
lower bound	0,36
upper bound	0,36

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
PCB 28	2,17
PCB 52	3,91
PCB 77	0,39
PCB 81	0,292
PCB 101	3,64
PCB 123	0,2952
PCB 118	2,33
PCB 114	0,2437
PCB 105	0,8
PCB 126	0,4017
PCB 153	6,03
PCB 138	4,11
PCB 167	0,362
PCB 156	0,49
PCB 157	0,382
PCB 169	0,317
PCB 180	1,24
PCB 189	0,593

TEQ (WHO 2005)	
lower bound	0,05
upper bound	0,05

Sum DIN PCB	21,46

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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=6)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	110
1,2,3,7,8-PeCDF	104
2,3,4,7,8-PeCDF	111
1,2,3,4,7,8-HxCDF	104
1,2,3,6,7,8-HxCDF	110
2,3,4,6,7,8-HxCDF	115
1,2,3,7,8,9-HxCDF	114
1,2,3,4,6,7,8-HpCDF	101
1,2,3,4,7,8,9-HpCDF	101
OCDF	107
2,3,7,8-TCDD	104
1,2,3,7,8-PeCDD	114
1,2,3,4,7,8-HxCDD	112
1,2,3,6,7,8-HxCDD	95
1,2,3,7,8,9-HxCDD	119
1,2,3,4,6,7,8-HpCDD	103
OCDD	99

Table 4: PCB 13C-recoveries (n=6)

Congeneres:	13C rec [%]
PCB 28	96
PCB 52	92
PCB 77	95
PCB 81	95
PCB 101	96
PCB 123	100
PCB 118	102
PCB 114	97
PCB 105	101
PCB 126	106
PCB 153	92
PCB 138	91
PCB 167	97
PCB 156	100
PCB 157	103
PCB 169	103
PCB 180	97
PCB 189	104

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