Quality Control Certificate

Product: **Alumina Column**

Product No.:   **15433**

Lot No.:   **716772**

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

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

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 DEva 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: 0,23   pg/column
                             (crit: <   0,7   pg/column)
                             dl-PCB-TEQ: 0,03   pg/column
                             (crit: <   0,05   pg/column)
                             Sum Indikator PCB: 38,32   pg/column
                             (crit: <   100   pg/column)

Results Recoveries: PCDD/F   91   to   115   % (crit: 70   to   120)
                             PCB   94   to   109   % (crit: 70   to   120)

This is to certify that alumina column, Lot 716772, passed the required test specifications and is released for sale.

date: 11.04.2022   sign.: _T. Kehemeir_

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

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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 column 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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DEKRA
Certification

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Results:

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=5)   *Table 2: PCB blank (n=5)*

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,09
1,2,3,7,8-PeCDF	0,11
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,054
1,2,3,6,7,8-HxCDF	0,028
2,3,4,6,7,8-HxCDF	<0,045
1,2,3,7,8,9-HxCDF	<0,045
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	0,045
OCDF	0,18
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,13
1,2,3,4,7,8-HxCDD	0,075
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,055
1,2,3,4,6,7,8-HpCDD	0,56
OCDD	0,5

TEQ (WHO 2005)	
lower bound	0,23
upper bound	0,23

Congeneres:	[pg/column]:
PCB 28	5,67
PCB 52	9,34
PCB 77	0,33
PCB 81	0,313
PCB 101	5,38
PCB 123	0,3613
PCB 118	3,4
PCB 114	0,3191
PCB 105	0,98
PCB 126	0,2336
PCB 153	8,95
PCB 138	6,03
PCB 167	0,425
PCB 156	0,64
PCB 157	0,245
PCB 169	0,198
PCB 180	2,52
PCB 189	0,405

TEQ (WHO 2005)	
lower bound	0,0296
upper bound	0,0296

Sum DIN PCB	38,32

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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=5)   *Table 4: PCB 13C-recoveries (n=5)*

Congeneres:	13C rec [%]
2,3,7,8-TCDF	98
1,2,3,7,8-PeCDF	101
2,3,4,7,8-PeCDF	98
1,2,3,4,7,8-HxCDF	91
1,2,3,6,7,8-HxCDF	104
2,3,4,6,7,8-HxCDF	107
1,2,3,7,8,9-HxCDF	115
1,2,3,4,6,7,8-HpCDF	99
1,2,3,4,7,8,9-HpCDF	104
OCDF	108
2,3,7,8-TCDD	92
1,2,3,7,8-PeCDD	108
1,2,3,4,7,8-HxCDD	107
1,2,3,6,7,8-HxCDD	92
1,2,3,7,8,9-HxCDD	115
1,2,3,4,6,7,8-HpCDD	106
OCDD	100

Congeneres:	13C rec [%]
PCB 28	109
PCB 52	105
PCB 77	99
PCB 81	99
PCB 101	100
PCB 123	97
PCB 118	96
PCB 114	97
PCB 105	94
PCB 126	96
PCB 153	99
PCB 138	99
PCB 167	100
PCB 156	96
PCB 157	103
PCB 169	102
PCB 180	98
PCB 189	97

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