Quality Control Certificate

Product: **Alumina Column**

Product No.: 15433

Lot No.: 719728

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 with the 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:	0,41	pg/column
		(crit: < 0,7	pg/column)
	dl-PCB-TEQ:	0,0332	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	25,6	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	76	to	103	%	(crit:	70	to	120	%)
	PCB	72	to	87	%	(crit:	70	to	120	%)

This is to certify that the Alumina Column, Lot 719728, passed the required test specifications and is released for sale.

date: 26.01.2024 sign.: T. Kehemeier

The company LCTech GmbH is certified according to ISO 9001

LCTech GmbH
Daimlerstrasse 4, 84419 Obertaufkirchen
Germany

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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: blankvalues of PCDD/F and PCB table 3 & 4: 13C-Recoveries of PCDD/F and PCB
Analytics	This is to certify that the Alumina Column, Lot , passed the required test specifications and is released for sale.
Remarks	n/a

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Results:

Lockmass check: No significant disturbances, or indicators for contaminations are detected.

Blanks: n= 10

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	0,05
	1,2,3,7,8-PeCDF	0,18
	2,3,4,7,8-PeCDF	0,16
	1,2,3,4,7,8-HxCDF	0,095
	1,2,3,6,7,8-HxCDF	0,067
	2,3,4,6,7,8-HxCDF	0,11
	1,2,3,7,8,9-HxCDF	0,14
	1,2,3,4,6,7,8-HpCDF	0,12
	1,2,3,4,7,8,9-HpCDF	0,061
	1,2,3,4,6,7,8,9-OCDF	0,11
	2,3,7,8-TCDD	0,08
	1,2,3,7,8-PeCDD	0,18
	1,2,3,4,7,8-HxCDD	0,116
	1,2,3,6,7,8-HxCDD	0,16
	1,2,3,7,8,9-HxCDD	0,15
	1,2,3,4,6,7,8-HpCDD	0,2
	1,2,3,4,6,7,8,9-OCDD	0,49

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	7,35
	PCB-#52	9,08
	PCB-#101	4,07
	PCB-#153	2,07
	PCB-#138	1,92
	PCB-#180	1,109
	PCB-#81	0,18
	PCB-#77	0,313
	PCB-#126	0,2808
	PCB-#169	0,162
	PCB-#123	0,41
	PCB-#118	1,05
	PCB-#114	0,586
	PCB-#105	0,98
	PCB-#167	0,515
	PCB-#156	0,773
	PCB-#157	0,44
	PCB-#189	1,194

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,41
upper bound	0,41

PCB-TEQ	[pg/column]
lower bound	0,0332
upper bound	0,0332
Sum DIN	25,6

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	82	3
1,2,3,7,8-PeCDF	80	3
2,3,4,7,8-PeCDF	76	1
1,2,3,4,7,8-HxCDF	93	6
1,2,3,6,7,8-HxCDF	103	6
2,3,4,6,7,8-HxCDF	94	6
1,2,3,7,8,9-HxCDF	93	6
1,2,3,4,6,7,8-HpCDF	98	4
1,2,3,4,7,8,9-HpCDF	86	3
1,2,3,4,6,7,8,9-OCDF	84	2
2,3,7,8-TCDD	78	1
1,2,3,7,8-PeCDD	81	3
1,2,3,4,7,8-HxCDD	102	4
1,2,3,6,7,8-HxCDD	84	5
1,2,3,7,8,9-HxCDD	99	4
1,2,3,4,6,7,8-HpCDD	90	3
1,2,3,4,6,7,8,9-OCDD	81	3

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	78	10
PCB-#52	79	10
PCB-#101	87	4
PCB-#153	84	4
PCB-#138	82	3
PCB-#180	81	3
PCB-#81	78	1
PCB-#77	79	1
PCB-#126	75	1
PCB-#169	74	3
PCB-#123	81	5
PCB-#118	81	6
PCB-#114	83	5
PCB-#105	81	6
PCB-#167	87	4
PCB-#156	72	15
PCB-#157	73	16
PCB-#189	81	4

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