Quality Control Certificate

Product: **Alumina Column**

Product No.: 15433

Lot No.: 723643

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:	0,05	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0038	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	30,1	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	84	to	115	%	(crit:	70	to	120	%)
	PCB	93	to	109	%	(crit:	70	to	120	%)

This is to certify that the Alumina Column, Lot 723643, passed the required test specifications and is released for sale.

date: 27.04.2026 sign.: T. Kehrmeier

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= 6

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	<dl
	1,2,3,7,8-PeCDF	<dl
	2,3,4,7,8-PeCDF	<dl
	1,2,3,4,7,8-HxCDF	<dl
	1,2,3,6,7,8-HxCDF	<dl
	2,3,4,6,7,8-HxCDF	<dl
	1,2,3,7,8,9-HxCDF	<dl
	1,2,3,4,6,7,8-HpCDF	<dl
	1,2,3,4,7,8,9-HpCDF	<dl
	1,2,3,4,6,7,8,9-OCDF	<dl
	2,3,7,8-TCDD	<dl
	1,2,3,7,8-PeCDD	<dl
	1,2,3,4,7,8-HxCDD	<0,027
	1,2,3,6,7,8-HxCDD	<dl
	1,2,3,7,8,9-HxCDD	<0,027
	1,2,3,4,6,7,8-HpCDD	0,09
	1,2,3,4,6,7,8,9-OCDD	0,53

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	14,29
	PCB-#52	11,64
	PCB-#101	1,91
	PCB-#153	0,78
	PCB-#138	0,91
	PCB-#180	0,568
	PCB-#81	0,09
	PCB-#77	<0,045
	PCB-#126	0,03
	PCB-#169	<0,027
	PCB-#123	0,09
	PCB-#118	0,68
	PCB-#114	0,014
	PCB-#105	0,1
	PCB-#167	<dl
	PCB-#156	<0,126
	PCB-#157	0,02
	PCB-#189	0,052

PCDD/F TEQ (2005)	[pg/column]
lower bound	0
upper bound	0,05

PCB-TEQ	[pg/column]
lower bound	0,0038
upper bound	0,0038
Sum DIN	30,1

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	104	4
1,2,3,7,8-PeCDF	86	14
2,3,4,7,8-PeCDF	86	11
1,2,3,4,7,8-HxCDF	97	12
1,2,3,6,7,8-HxCDF	95	5
2,3,4,6,7,8-HxCDF	106	10
1,2,3,7,8,9-HxCDF	108	5
1,2,3,4,6,7,8-HpCDF	103	9
1,2,3,4,7,8,9-HpCDF	96	5
1,2,3,4,6,7,8,9-OCDF	115	5
2,3,7,8-TCDD	95	2
1,2,3,7,8-PeCDD	84	12
1,2,3,4,7,8-HxCDD	109	8
1,2,3,6,7,8-HxCDD	89	12
1,2,3,7,8,9-HxCDD	105	6
1,2,3,4,6,7,8-HpCDD	103	4
1,2,3,4,6,7,8,9-OCDD	101	5

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	106	1
PCB-#52	93	1
PCB-#101	101	4
PCB-#153	95	4
PCB-#138	102	5
PCB-#180	97	3
PCB-#81	99	1
PCB-#77	98	1
PCB-#126	108	3
PCB-#169	98	3
PCB-#123	99	2
PCB-#118	100	2
PCB-#114	97	2
PCB-#105	99	2
PCB-#167	101	2
PCB-#156	101	4
PCB-#157	109	4
PCB-#189	100	4

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