

## Quality Control Certificate

Product: **Alumina Column**  
 Product No.: 15433  
 Lot No.: **720669**

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:	0,14	pg/column
		(crit: <	0,70 pg/column)
	dl-PCB-TEQ:	0,0309	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	7,2	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	87	to	113	%	(crit: 70	to	120	%)
	PCB	85	to	99	%	(crit: 70	to	120	%)

This is to certify that the Alumina Column, Lot 720669, passed the required test specifications and is released for sale.

date: 02.09.2024

sign.: 

Thomas Kerkemeier

The company LCTech GmbH is certified according to ISO 9001



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Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>The Alumina Column is designed and prepared for usage with the Universal/standard &amp; 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.</p>
Quality Control:	<p>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.</p>
Quality Management:	<p>This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)</p>
Documentation / Data Attached:	<p>table 1 &amp; 2: blankvalues of PCDD/F and PCB table 3 &amp; 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>This is to certify that the Alumina Column, Lot , passed the required test specifications and is released for sale.</p>
Remarks	<p>n/a</p>



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Results:

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

Blanks: n= 6

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	0,1
2,3,4,7,8-PeCDF	0,09
1,2,3,4,7,8-HxCDF	0,031
1,2,3,6,7,8-HxCDF	0,029
2,3,4,6,7,8-HxCDF	<0,045
1,2,3,7,8,9-HxCDF	0,05
1,2,3,4,6,7,8-HpCDF	0,18
1,2,3,4,7,8,9-HpCDF	0,024
1,2,3,4,6,7,8,9-OCDF	<0,054
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	<0,054
1,2,3,4,7,8-HxCDD	0,028
1,2,3,6,7,8-HxCDD	0,25
1,2,3,7,8,9-HxCDD	0,044
1,2,3,4,6,7,8-HpCDD	0,24
1,2,3,4,6,7,8,9-OCDD	2,49

Table 2: PCB blank

	[pg/column]
PCB-#28	3,23
PCB-#52	2,3
PCB-#101	1,19
PCB-#153	0,2
PCB-#138	<dl
PCB-#180	0,328
PCB-#81	0,23
PCB-#77	0,46
PCB-#126	0,2351
PCB-#169	0,239
PCB-#123	0,09
PCB-#118	0,34
PCB-#114	0,056
PCB-#105	0,17
PCB-#167	0,105
PCB-#156	<0,126
PCB-#157	0,34
PCB-#189	0,239

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,14
upper bound	0,14

PCB-TEQ	[pg/column]
lower bound	0,0309
upper bound	0,0309
Sum DIN	7,2

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	104	4
	1,2,3,7,8-PeCDF	100	7
	2,3,4,7,8-PeCDF	103	7
	1,2,3,4,7,8-HxCDF	104	5
	1,2,3,6,7,8-HxCDF	113	4
	2,3,4,6,7,8-HxCDF	110	6
	1,2,3,7,8,9-HxCDF	108	7
	1,2,3,4,6,7,8-HpCDF	104	3
	1,2,3,4,7,8,9-HpCDF	99	3
	1,2,3,4,6,7,8,9-OCDF	99	4
	2,3,7,8-TCDD	93	6
	1,2,3,7,8-PeCDD	99	7
	1,2,3,4,7,8-HxCDD	109	4
	1,2,3,6,7,8-HxCDD	95	4
	1,2,3,7,8,9-HxCDD	112	4
	1,2,3,4,6,7,8-HpCDD	87	3
	1,2,3,4,6,7,8,9-OCDD	87	4

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	96	4
	PCB-#52	89	6
	PCB-#101	91	7
	PCB-#153	86	13
	PCB-#138	99	3
	PCB-#180	88	6
	PCB-#81	96	5
	PCB-#77	91	6
	PCB-#126	98	6
	PCB-#169	97	8
	PCB-#123	90	3
	PCB-#118	87	5
	PCB-#114	94	3
	PCB-#105	98	4
	PCB-#167	89	6
	PCB-#156	91	4
	PCB-#157	93	5
	PCB-#189	85	5