Quality Control Certificate

Product:	**Alumina Column**
Product No.:	15433
Lot No.:	**722939**

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:	0,09	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	< dl	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	0	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	74	to	120	%	(crit:	70	to	120	%)
	PCB	90	to	108	%	(crit:	70	to	120	%)

This is to certify that the Alumina Column, Lot 722939, passed the required test specifications and is released for sale.

date: 09.12.2025 sign.: M. Bradis

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	<0,045
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	0,031
	1,2,3,6,7,8-HxCDF	0,022
	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	0,1
	1,2,3,4,7,8,9-HpCDF	0,042
	1,2,3,4,6,7,8,9-OCDF	0,11
	2,3,7,8-TCDD	<dl
	1,2,3,7,8-PeCDD	<0,054
	1,2,3,4,7,8-HxCDD	<0,027
	1,2,3,6,7,8-HxCDD	<0,108
	1,2,3,7,8,9-HxCDD	0,039
	1,2,3,4,6,7,8-HpCDD	0,15
	1,2,3,4,6,7,8,9-OCDD	3,16

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,08
upper bound	0,09

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	<0,153
	PCB-#52	<dl
	PCB-#101	<dl
	PCB-#153	<dl
	PCB-#138	<dl
	PCB-#180	<dl
	PCB-#81	<dl
	PCB-#77	<dl
	PCB-#126	0,0047
	PCB-#169	<dl
	PCB-#123	0,0048
	PCB-#118	<dl
	PCB-#114	0,0048
	PCB-#105	<dl
	PCB-#167	<dl
	PCB-#156	<dl
	PCB-#157	<dl
	PCB-#189	<0,0072

PCB-TEQ	[pg/column]
lower bound	0,0005
upper bound	0,0008
Sum DIN	0

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]		[%]	RSD [%]
	2,3,7,8-TCDF	74	4
	1,2,3,7,8-PeCDF	112	4
	2,3,4,7,8-PeCDF	112	5
	1,2,3,4,7,8-HxCDF	117	3
	1,2,3,6,7,8-HxCDF	105	5
	2,3,4,6,7,8-HxCDF	120	5
	1,2,3,7,8,9-HxCDF	114	7
	1,2,3,4,6,7,8-HpCDF	110	8
	1,2,3,4,7,8,9-HpCDF	76	6
	1,2,3,4,6,7,8,9-OCDF	89	6
	2,3,7,8-TCDD	99	7
	1,2,3,7,8-PeCDD	120	5
	1,2,3,4,7,8-HxCDD	117	5
	1,2,3,6,7,8-HxCDD	102	5
	1,2,3,7,8,9-HxCDD	118	8
	1,2,3,4,6,7,8-HpCDD	98	8
	1,2,3,4,6,7,8,9-OCDD	93	6

Table 4: PCB recoveries

PCB 13C Recoveries [%]		[%]	RSD [%]
	PCB-#28	99	3
	PCB-#52	102	6
	PCB-#101	99	2
	PCB-#153	90	3
	PCB-#138	91	4
	PCB-#180	108	3
	PCB-#81	97	4
	PCB-#77	103	4
	PCB-#126	102	3
	PCB-#169	100	4
	PCB-#123	94	3
	PCB-#118	94	2
	PCB-#114	96	3
	PCB-#105	101	4
	PCB-#167	96	4
	PCB-#156	108	4
	PCB-#157	108	2
	PCB-#189	96	4

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