Quality Control Certificate

Product:	**EVOLUTION Alox Column**
Product No.:	20087
Lot No.:	**722131**

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

Description: The EVOLUTION 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:	0,16	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0019	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	6,5	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	88	to	118	%	(crit:	70	to	120	%)
	PCB	83	to	103	%	(crit:	70	to	120	%)

This is to certify that the EVOLUTION Alox Column, Lot 722131, passed the required test specifications and is released for sale.

date: 10.09.2025 sign.: M. Brachs

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 EVOLUTION Alumina Column, Lot , passed the required test specifications and is released for sale.
Remarks	n/a

LCTech GmbH
Daimlerstrasse 4, 84419 Obertaufkirchen, Germany,
Tel +49 8082 2717 - 0, info@lctech.de, www.lctech.de

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Results:

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

Blanks: n= 5

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	<0,036
	1,2,3,7,8-PeCDF	<0,045
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	<0,027
	1,2,3,6,7,8-HxCDF	<0,018
	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	0,12
	1,2,3,4,7,8,9-HpCDF	<dl
	1,2,3,4,6,7,8,9-OCDF	<0,054
	2,3,7,8-TCDD	<dl
	1,2,3,7,8-PeCDD	0,08
	1,2,3,4,7,8-HxCDD	0,069
	1,2,3,6,7,8-HxCDD	0,21
	1,2,3,7,8,9-HxCDD	0,028
	1,2,3,4,6,7,8-HpCDD	<0,09
	1,2,3,4,6,7,8,9-OCDD	1,47

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,15
upper bound	0,16

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	2,9
	PCB-#52	2,36
	PCB-#101	0,83
	PCB-#153	0,36
	PCB-#138	<dl
	PCB-#180	<dl
	PCB-#81	<dl
	PCB-#77	0,316
	PCB-#126	<dl
	PCB-#169	0,061
	PCB-#123	<dl
	PCB-#118	0,16
	PCB-#114	<dl
	PCB-#105	<dl
	PCB-#167	0,443
	PCB-#156	0,194
	PCB-#157	0,04
	PCB-#189	<dl

PCB-TEQ	[pg/column]
lower bound	0,0019
upper bound	0,002
Sum DIN	6,5

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	93	8
1,2,3,7,8-PeCDF	98	9
2,3,4,7,8-PeCDF	101	6
1,2,3,4,7,8-HxCDF	108	10
1,2,3,6,7,8-HxCDF	118	11
2,3,4,6,7,8-HxCDF	111	8
1,2,3,7,8,9-HxCDF	113	7
1,2,3,4,6,7,8-HpCDF	113	8
1,2,3,4,7,8,9-HpCDF	108	9
1,2,3,4,6,7,8,9-OCDF	102	8
2,3,7,8-TCDD	91	8
1,2,3,7,8-PeCDD	107	9
1,2,3,4,7,8-HxCDD	106	9
1,2,3,6,7,8-HxCDD	91	8
1,2,3,7,8,9-HxCDD	111	8
1,2,3,4,6,7,8-HpCDD	106	9
1,2,3,4,6,7,8,9-OCDD	88	10

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	92	10
PCB-#52	83	6
PCB-#101	93	7
PCB-#153	90	6
PCB-#138	92	6
PCB-#180	91	6
PCB-#81	91	7
PCB-#77	93	7
PCB-#126	103	8
PCB-#169	89	6
PCB-#123	101	8
PCB-#118	103	8
PCB-#114	97	8
PCB-#105	99	8
PCB-#167	92	8
PCB-#156	87	6
PCB-#157	93	6
PCB-#189	91	7

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