Quality Control Certificate

Product:	**EVOLUTION Alox Column**
Product No.:	20087
Lot No.:	**722661**

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:	0,09	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0055	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	16,8	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	87	to	110	%	(crit:	70	to	120	%)
	PCB	84	to	107	%	(crit:	70	to	120	%)

This is to certify that the EVOLUTION Alox Column, Lot 722661, passed the required test specifications and is released for sale.

date: 07.01.2026 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 EVOLUTION 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	0,07
	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	0,02
	2,3,4,6,7,8-HxCDF	<0,045
	1,2,3,7,8,9-HxCDF	<dl
	1,2,3,4,6,7,8-HpCDF	<0,063
	1,2,3,4,7,8,9-HpCDF	<dl
	1,2,3,4,6,7,8,9-OCDF	<dl
	2,3,7,8-TCDD	<0,036
	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	0,37

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,06
upper bound	0,09

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	5,69
	PCB-#52	6,98
	PCB-#101	1,95
	PCB-#153	0,87
	PCB-#138	1,02
	PCB-#180	0,293
	PCB-#81	0,04
	PCB-#77	0,543
	PCB-#126	0,0544
	PCB-#169	<dl
	PCB-#123	0,04
	PCB-#118	0,8
	PCB-#114	0,013
	PCB-#105	<0,081
	PCB-#167	0,056
	PCB-#156	<0,126
	PCB-#157	0,03
	PCB-#189	0,086

PCB-TEQ	[pg/column]
lower bound	0,0055
upper bound	0,0058
Sum DIN	16,8

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	89	1
1,2,3,7,8-PeCDF	102	1
2,3,4,7,8-PeCDF	105	2
1,2,3,4,7,8-HxCDF	102	3
1,2,3,6,7,8-HxCDF	107	3
2,3,4,6,7,8-HxCDF	105	2
1,2,3,7,8,9-HxCDF	108	2
1,2,3,4,6,7,8-HpCDF	103	1
1,2,3,4,7,8,9-HpCDF	96	1
1,2,3,4,6,7,8,9-OCDF	95	1
2,3,7,8-TCDD	91	1
1,2,3,7,8-PeCDD	107	3
1,2,3,4,7,8-HxCDD	110	2
1,2,3,6,7,8-HxCDD	91	3
1,2,3,7,8,9-HxCDD	110	3
1,2,3,4,6,7,8-HpCDD	98	1
1,2,3,4,6,7,8,9-OCDD	87	2

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	96	2
PCB-#52	87	3
PCB-#101	101	3
PCB-#153	97	2
PCB-#138	98	2
PCB-#180	106	2
PCB-#81	95	3
PCB-#77	99	3
PCB-#126	87	3
PCB-#169	95	4
PCB-#123	106	3
PCB-#118	106	2
PCB-#114	106	3
PCB-#105	84	3
PCB-#167	93	2
PCB-#156	107	3
PCB-#157	107	2
PCB-#189	106	3

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