

Quality Control Certificate

Product: **EVOLUTION Alox Column**
 Product No.: 20087
 Lot No.: **720134**

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:	0,14	pg/column
		(crit: <	0,70 pg/column)
	dl-PCB-TEQ:	0,0201	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	39,8	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	81	to	118	%	(crit: 70	to	120	%)
	PCB	84	to	108	%	(crit: 70	to	120	%)

This is to certify that the EVOLUTION Alox Column, Lot 720134, passed the required test specifications and is released for sale.

date: 19.08.2024 sign.: T. Kehmeier

The company LCTech GmbH is certified according to ISO 9001



QC-Certificate - 20087 - 720134

Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>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.</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 & 2: blankvalues of PCDD/F and PCB table 3 & 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>This is to certify that the EVOLUTION Alumina Column, Lot , passed the required test specifications and is released for sale.</p>
Remarks	<p>n/a</p>



QC-Certificate - 20087 - 720134

Results:

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

Blanks: n= 10

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	0,05
1,2,3,7,8-PeCDF	0,06
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	<0,063
1,2,3,4,7,8,9-HpCDF	<0,018
1,2,3,4,6,7,8,9-OCDF	<0,054
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,07
1,2,3,4,7,8-HxCDD	<dl
1,2,3,6,7,8-HxCDD	0,23
1,2,3,7,8,9-HxCDD	0,067
1,2,3,4,6,7,8-HpCDD	<0,09
1,2,3,4,6,7,8,9-OCDD	1,38

Table 2: PCB blank

	[pg/column]
PCB-#28	10,43
PCB-#52	16,84
PCB-#101	6,93
PCB-#153	2,96
PCB-#138	1,95
PCB-#180	0,716
PCB-#81	0,35
PCB-#77	0,2463
PCB-#126	0,05
PCB-#169	0,497
PCB-#123	0,07
PCB-#118	1,46
PCB-#114	0,029
PCB-#105	0,37
PCB-#167	0,236
PCB-#156	0,359
PCB-#157	0,18
PCB-#189	0,434

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,13
upper bound	0,14

PCB-TEQ	[pg/column]
lower bound	0,0201
upper bound	0,0201
Sum DIN	39,8

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	88	4
	1,2,3,7,8-PeCDF	81	13
	2,3,4,7,8-PeCDF	95	6
	1,2,3,4,7,8-HxCDF	103	10
	1,2,3,6,7,8-HxCDF	111	9
	2,3,4,6,7,8-HxCDF	110	11
	1,2,3,7,8,9-HxCDF	118	5
	1,2,3,4,6,7,8-HpCDF	118	5
	1,2,3,4,7,8,9-HpCDF	113	10
	1,2,3,4,6,7,8,9-OCDF	110	17
	2,3,7,8-TCDD	91	7
	1,2,3,7,8-PeCDD	110	9
	1,2,3,4,7,8-HxCDD	110	9
	1,2,3,6,7,8-HxCDD	92	12
	1,2,3,7,8,9-HxCDD	114	7
	1,2,3,4,6,7,8-HpCDD	113	7
	1,2,3,4,6,7,8,9-OCDD	118	23

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	95	7
	PCB-#52	97	15
	PCB-#101	89	4
	PCB-#153	101	10
	PCB-#138	99	7
	PCB-#180	89	4
	PCB-#81	102	6
	PCB-#77	105	4
	PCB-#126	108	13
	PCB-#169	93	5
	PCB-#123	97	12
	PCB-#118	95	12
	PCB-#114	95	13
	PCB-#105	89	12
	PCB-#167	97	4
	PCB-#156	91	5
	PCB-#157	94	7
	PCB-#189	84	18