

Quality Control Certificate

Product: **EVOLUTION Alox Column**
 Product No.: 20087
 Lot No.: **718192**

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:	0,17	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,0339	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	34,8	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	95	to	120	%	(crit: 70	to	120	%)
	PCB	98	to	120	%	(crit: 70	to	120	%)

This is to certify that the EVOLUTION Alox Column, Lot 718192, passed the required test specifications and is released for sale.

date: 25.05.2023 sign.: T. Keshmeir

The company LCTech GmbH is certified according to ISO 9001



QC-Certificate - 20087 - 718192

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 - 718192

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	0,12
1,2,3,7,8-PeCDF	0,08
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,032
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	0,024
1,2,3,4,6,7,8,9-OCDF	<0,054
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,09
1,2,3,4,7,8-HxCDD	<dl
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,043
1,2,3,4,6,7,8-HpCDD	<0,09
1,2,3,4,6,7,8,9-OCDD	0,26

Table 2: PCB blank

	[pg/column]
PCB-#28	10,37
PCB-#52	14,17
PCB-#101	4,85
PCB-#153	3,18
PCB-#138	1,77
PCB-#180	0,445
PCB-#81	0,25
PCB-#77	0,4267
PCB-#126	0,445
PCB-#169	0,155
PCB-#123	<0,18
PCB-#118	1,84
PCB-#114	0,153
PCB-#105	0,74
PCB-#167	0,153
PCB-#156	0,258
PCB-#157	0,12
PCB-#189	0,28

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,17
upper bound	0,17

PCB-TEQ	[pg/column]
lower bound	0,0339
upper bound	0,0339
Sum DIN	34,8

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	102	4
	1,2,3,7,8-PeCDF	97	8
	2,3,4,7,8-PeCDF	95	7
	1,2,3,4,7,8-HxCDF	112	6
	1,2,3,6,7,8-HxCDF	120	6
	2,3,4,6,7,8-HxCDF	118	3
	1,2,3,7,8,9-HxCDF	120	5
	1,2,3,4,6,7,8-HpCDF	115	3
	1,2,3,4,7,8,9-HpCDF	107	6
	1,2,3,4,6,7,8,9-OCDF	101	4
	2,3,7,8-TCDD	98	9
	1,2,3,7,8-PeCDD	104	11
	1,2,3,4,7,8-HxCDD	108	5
	1,2,3,6,7,8-HxCDD	108	2
	1,2,3,7,8,9-HxCDD	117	2
	1,2,3,4,6,7,8-HpCDD	118	4
	1,2,3,4,6,7,8,9-OCDD	96	4

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	103	1
	PCB-#52	98	1
	PCB-#101	108	0
	PCB-#153	105	2
	PCB-#138	100	2
	PCB-#180	101	1
	PCB-#81	120	0
	PCB-#77	119	0
	PCB-#126	117	0
	PCB-#169	118	0
	PCB-#123	112	2
	PCB-#118	106	1
	PCB-#114	107	1
	PCB-#105	107	2
	PCB-#167	105	1
	PCB-#156	103	1
	PCB-#157	105	1
	PCB-#189	103	2