

Quality Control Certificate

Product: **EVOLUTION Alox Column**
 Product No.: 20087
 Lot No.: **719920**

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:	0,57	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,032	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	39,9	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	74	to	97	%	(crit: 70	to	120	%)
	PCB	79	to	97	%	(crit: 70	to	120	%)

This is to certify that the EVOLUTION Alox Column, Lot 719920, passed the required test specifications and is released for sale.

date: 08.02.2024 sign.: T. Keshmeir

The company LCTech GmbH is certified according to ISO 9001



QC-Certificate - 20087 - 719920

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 - 719920

Results:

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

Blanks: n= 7

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	0,05
1,2,3,7,8-PeCDF	0,2
2,3,4,7,8-PeCDF	0,25
1,2,3,4,7,8-HxCDF	0,338
1,2,3,6,7,8-HxCDF	0,256
2,3,4,6,7,8-HxCDF	0,22
1,2,3,7,8,9-HxCDF	0,31
1,2,3,4,6,7,8-HpCDF	0,38
1,2,3,4,7,8,9-HpCDF	0,306
1,2,3,4,6,7,8,9-OCDF	0,49
2,3,7,8-TCDD	0,07
1,2,3,7,8-PeCDD	0,21
1,2,3,4,7,8-HxCDD	0,218
1,2,3,6,7,8-HxCDD	0,35
1,2,3,7,8,9-HxCDD	0,23
1,2,3,4,6,7,8-HpCDD	0,33
1,2,3,4,6,7,8,9-OCDD	0,96

Table 2: PCB blank

	[pg/column]
PCB-#28	11,28
PCB-#52	10,91
PCB-#101	4,74
PCB-#153	5,24
PCB-#138	4,85
PCB-#180	2,847
PCB-#81	0,13
PCB-#77	1,059
PCB-#126	0,2511
PCB-#169	0,214
PCB-#123	1,16
PCB-#118	1,71
PCB-#114	0,925
PCB-#105	1,38
PCB-#167	1,453
PCB-#156	2,05
PCB-#157	1
PCB-#189	2,479

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,57
upper bound	0,57

PCB-TEQ	[pg/column]
lower bound	0,032
upper bound	0,032
Sum DIN	39,9

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	94	6
	1,2,3,7,8-PeCDF	90	6
	2,3,4,7,8-PeCDF	97	6
	1,2,3,4,7,8-HxCDF	78	4
	1,2,3,6,7,8-HxCDF	79	4
	2,3,4,6,7,8-HxCDF	84	5
	1,2,3,7,8,9-HxCDF	87	6
	1,2,3,4,6,7,8-HpCDF	85	4
	1,2,3,4,7,8,9-HpCDF	94	6
	1,2,3,4,6,7,8,9-OCDF	90	6
	2,3,7,8-TCDD	86	6
	1,2,3,7,8-PeCDD	94	7
	1,2,3,4,7,8-HxCDD	92	5
	1,2,3,6,7,8-HxCDD	74	5
	1,2,3,7,8,9-HxCDD	87	4
	1,2,3,4,6,7,8-HpCDD	86	6
	1,2,3,4,6,7,8,9-OCDD	84	5

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	95	8
	PCB-#52	96	11
	PCB-#101	96	5
	PCB-#153	97	5
	PCB-#138	96	6
	PCB-#180	93	9
	PCB-#81	79	5
	PCB-#77	81	6
	PCB-#126	83	6
	PCB-#169	90	7
	PCB-#123	86	13
	PCB-#118	86	12
	PCB-#114	89	13
	PCB-#105	81	9
	PCB-#167	85	4
	PCB-#156	85	12
	PCB-#157	83	13
	PCB-#189	83	7