

Quality Control Certificate

Product: EVOLUTION Alox Colu

Product No.: 20087

Lot No.: 716661

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 via DEva 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: <	0,7 pg/column)
dl-PCB-TEQ:	0,003	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	0,3	pg/column
	(crit: <	100 pg/column)

Results Recoveries:

PCDD/F	89	to	113	%	(crit: 70 to 120)
PCB	84	to	111	%	(crit: 70 to 120)

This is to certify that the EVOLUTION alumina column, Lot 716661, passed the required test specifications and is released for sale.

date: 25.03.2022 sign.: _____

T. Kehmeier

The company LCTech GmbH is certified according to ISO 9001:2015



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: Blank values of PCDD/F and PCB
Table 3 & 4: 13C-Recoveries of PCDD/F and PCB

Analytcs: All the columns (n>5) have to perform a clean-up of a solvent blank (10 mL n-hexane), spiked with a 13C - labelled quantifier-standard solution with a single column method onto a DEXTech Plus system. The fractions 1 (PCB) and 2 (PCDD/F) are spiked with 13C - labelled recovery- standard solutions and evaporated with the D-EVA vacuum centrifuge. The extracts are measured with a HRMS-DFS from Thermo Fisher Scientific with a resolution of R > 10000. The HRGCs are equipped with 60 m DB5 MS columns. For PCDD/F 5µL are injected via PTV, for PCB 2µL via SSL.

Remarks: n/a

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Results:

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=5)

Table 2: PCB blank (n=5)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,04
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	<0,063
1,2,3,4,7,8,9-HpCDF	0,03
OCDF	0,14
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,11
1,2,3,4,7,8-HxCDD	0,06
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,049
1,2,3,4,6,7,8-HpCDD	0,16
OCDD	1,74

Congeneres:	[pg/column]:
PCB 28	<0,153
PCB 52	<dl
PCB 77	0,05
PCB 81	<0,027
PCB 101	<dl
PCB 123	0,031
PCB 118	<dl
PCB 114	0,0221
PCB 105	<0,081
PCB 126	0,0188
PCB 153	<0,162
PCB 138	<dl
PCB 167	<0,027
PCB 156	<dl
PCB 157	0,023
PCB 169	<0,027
PCB 180	<dl
PCB 189	0,015

TEQ (WHO 2005)	
lower bound	0,16
upper bound	0,17

TEQ (WHO 2005)	
lower bound	0,0025
upper bound	0,0025

Sum DIN PCB	0,3
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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=5)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	104
1,2,3,7,8-PeCDF	104
2,3,4,7,8-PeCDF	106
1,2,3,4,7,8-HxCDF	96
1,2,3,6,7,8-HxCDF	102
2,3,4,6,7,8-HxCDF	103
1,2,3,7,8,9-HxCDF	113
1,2,3,4,6,7,8-HpCDF	106
1,2,3,4,7,8,9-HpCDF	108
OCDF	92
2,3,7,8-TCDD	98
1,2,3,7,8-PeCDD	109
1,2,3,4,7,8-HxCDD	110
1,2,3,6,7,8-HxCDD	91
1,2,3,7,8,9-HxCDD	113
1,2,3,4,6,7,8-HpCDD	102
OCDD	89

Table 4: PCB 13C-recoveries (n=5)

Congeneres:	13C rec [%]
PCB 28	108
PCB 52	86
PCB 77	87
PCB 81	84
PCB 101	97
PCB 123	107
PCB 118	111
PCB 114	101
PCB 105	88
PCB 126	84
PCB 153	106
PCB 138	86
PCB 167	107
PCB 156	108
PCB 157	110
PCB 169	106
PCB 180	108
PCB 189	108

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