

# Quality Control Certificate

**Product:** Alumina Column

**Product No.:** 15433

**Lot No.:** 714799

**Storage Recommendations:** Store the column at room temperature below 25°C

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**Description:** The 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-up on a DEXTech Plus system, spiked with recovery standard, evaporated via DEva and has been quantified with a HRGC/HRMS with a resolution of R > 10000.

**Results Blank Value:**

PCDD/F-TEQ:	0,52	pg/column
	(crit: <	0,7 pg/column
dl-PCB-TEQ:	0,005	pg/column
	(crit: <	0,05 pg/column
Sum Indikator PCB:	2,4	pg/column
	(crit: <	100 pg/column

**Results Recoveries:**

PCDD/F	91	to	98	%	(crit: 70 to 120 )
PCB	88	to	110	%	(crit: 70 to 120 )

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This is to certify that alumina column, Lot 714799, passed the required test specifications and is released for sale.

date: 03.03.2021 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=8)

Table 2: PCB blank (n=8)

**Congeneres:** [pg/column]:

2,3,7,8-TCDF	0,16
1,2,3,7,8-PeCDF	0,34
2,3,4,7,8-PeCDF	0,42
1,2,3,4,7,8-HxCDF	0,08
1,2,3,6,7,8-HxCDF	0,035
2,3,4,6,7,8-HxCDF	0,08
1,2,3,7,8,9-HxCDF	0,35
1,2,3,4,6,7,8-HpCDF	0,07
1,2,3,4,7,8,9-HpCDF	<0,018
OCDF	0,07
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,28
1,2,3,4,7,8-HxCDD	<0,027
1,2,3,6,7,8-HxCDD	0,2
1,2,3,7,8,9-HxCDD	0,086
1,2,3,4,6,7,8-HpCDD	0,24
OCDD	1,21

TEQ (WHO 2005)	
lower bound	0,52
upper bound	0,53

**Congeneres:** [pg/column]:

PCB 28	0,87
PCB 52	0,75
PCB 77	0,05
PCB 81	<0,027
PCB 101	0,28
PCB 123	<0,0027
PCB 118	<0,108
PCB 114	0,0092
PCB 105	<0,081
PCB 126	0,0521
PCB 153	0,19
PCB 138	<0,261
PCB 167	0,029
PCB 156	<dl
PCB 157	0,027
PCB 169	<dl
PCB 180	<0,18
PCB 189	0,055

TEQ (WHO 2005)	
lower bound	0,0052
upper bound	0,0055

Sum DIN PCB	2,4
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**Results:**

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=8)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	93
1,2,3,7,8-PeCDF	95
2,3,4,7,8-PeCDF	96
1,2,3,4,7,8-HxCDF	91
1,2,3,6,7,8-HxCDF	95
2,3,4,6,7,8-HxCDF	97
1,2,3,7,8,9-HxCDF	93
1,2,3,4,6,7,8-HpCDF	94
1,2,3,4,7,8,9-HpCDF	95
OCDF	93
2,3,7,8-TCDD	96
1,2,3,7,8-PeCDD	97
1,2,3,4,7,8-HxCDD	98
1,2,3,6,7,8-HxCDD	94
1,2,3,7,8,9-HxCDD	94
1,2,3,4,6,7,8-HpCDD	96
OCDD	94

Table 4: PCB 13C-recoveries (n=8)

Congeneres:	13C rec [%]
PCB 28	93
PCB 52	96
PCB 77	104
PCB 81	93
PCB 101	96
PCB 123	100
PCB 118	99
PCB 114	105
PCB 105	94
PCB 126	110
PCB 153	88
PCB 138	88
PCB 167	97
PCB 156	94
PCB 157	92
PCB 169	90
PCB 180	91
PCB 189	92

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