

# Quality Control Certificate

**Product:** Alumina Column

**Product No.:** 15433

**Lot No.:** 715145

**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 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:	0,35	pg/column
	(crit: < 0,7	pg/column)
dl-PCB-TEQ:	0,023	pg/column
	(crit: < 0,05	pg/column)
Sum Indikator PCB:	75,58	pg/column
	(crit: < 100	pg/column)

**Results Recoveries:**

PCDD/F	80	to	109	%	(crit: 70 to 120 )
PCB	75	to	113	%	(crit: 70 to 120 )

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This is to certify that alumina column, Lot 715145, passed the required test specifications and is released for sale.

date: 13.07.2021 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=9)

Table 2: PCB blank (n=9)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,1
1,2,3,7,8-PeCDF	0,17
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,033
1,2,3,6,7,8-HxCDF	0,037
2,3,4,6,7,8-HxCDF	<0,045
1,2,3,7,8,9-HxCDF	0,05
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	0,024
OCDF	0,15
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,26
1,2,3,4,7,8-HxCDD	0,031
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,028
1,2,3,4,6,7,8-HpCDD	<0,09
OCDD	0,59

Congeneres:	[pg/column]:
PCB 28	13,35
PCB 52	14,68
PCB 77	0,13
PCB 81	0,08
PCB 101	12,5
PCB 123	0,1002
PCB 118	0,25
PCB 114	0,0977
PCB 105	0,18
PCB 126	0,1796
PCB 153	11,34
PCB 138	10,32
PCB 167	0,082
PCB 156	0,31
PCB 157	0,081
PCB 169	0,157
PCB 180	13,31
PCB 189	0,324

TEQ (WHO 2005)	
lower bound	0,35
upper bound	0,35

TEQ (WHO 2005)	
lower bound	0,0227
upper bound	0,0227

Sum DIN PCB	75,58
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**Results:**

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=9)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	82
1,2,3,7,8-PeCDF	90
2,3,4,7,8-PeCDF	89
1,2,3,4,7,8-HxCDF	89
1,2,3,6,7,8-HxCDF	95
2,3,4,6,7,8-HxCDF	85
1,2,3,7,8,9-HxCDF	88
1,2,3,4,6,7,8-HpCDF	109
1,2,3,4,7,8,9-HpCDF	99
OCDF	87
2,3,7,8-TCDD	81
1,2,3,7,8-PeCDD	90
1,2,3,4,7,8-HxCDD	95
1,2,3,6,7,8-HxCDD	80
1,2,3,7,8,9-HxCDD	89
1,2,3,4,6,7,8-HpCDD	100
OCDD	85

Table 4: PCB 13C-recoveries (n=9)

Congeneres:	13C rec [%]
PCB 28	113
PCB 52	110
PCB 77	89
PCB 81	88
PCB 101	98
PCB 123	87
PCB 118	93
PCB 114	85
PCB 105	80
PCB 126	75
PCB 153	108
PCB 138	107
PCB 167	97
PCB 156	81
PCB 157	109
PCB 169	77
PCB 180	101
PCB 189	79

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