

# Quality Control Certificate

**Product:** Alumina Column

**Product No.:** 19511

**Lot No.:** 715630

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

---

**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:	0,25	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,007	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	2,7	pg/column
	(crit: <	100 pg/column)

**Results Recoveries:**

PCDD/F	88	to	113	%	(crit: 70 to 120 )
PCB	87	to	106	%	(crit: 70 to 120 )

---

This is to certify that alumina column, Lot 715630, passed the required test specifications and is released for sale.

date: 04.10.2021 sign.: \_\_\_\_\_

*T. Kehlmeier*

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

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



**Results:**

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=6)

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	<0,045
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,082
1,2,3,6,7,8-HxCDF	0,088
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	<0,018
OCDF	0,21
2,3,7,8-TCDD	0,05
1,2,3,7,8-PeCDD	0,14
1,2,3,4,7,8-HxCDD	0,044
1,2,3,6,7,8-HxCDD	<dl
1,2,3,7,8,9-HxCDD	0,125
1,2,3,4,6,7,8-HpCDD	<0,09
OCDD	0,63

Congeneres:	[pg/column]:
PCB 28	0,83
PCB 52	0,87
PCB 77	0,13
PCB 81	0,039
PCB 101	0,38
PCB 123	0,0562
PCB 118	<0,108
PCB 114	0,0802
PCB 105	0,24
PCB 126	0,0643
PCB 153	0,25
PCB 138	<0,261
PCB 167	0,049
PCB 156	<0,126
PCB 157	0,081
PCB 169	0,031
PCB 180	<0,18
PCB 189	0,085

TEQ (WHO 2005)	
lower bound	0,25
upper bound	0,25

TEQ (WHO 2005)	
lower bound	0,0074
upper bound	0,0074

Sum DIN PCB	2,7
-------------	-----

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

**Results:**

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=6)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	91
1,2,3,7,8-PeCDF	96
2,3,4,7,8-PeCDF	93
1,2,3,4,7,8-HxCDF	95
1,2,3,6,7,8-HxCDF	96
2,3,4,6,7,8-HxCDF	96
1,2,3,7,8,9-HxCDF	93
1,2,3,4,6,7,8-HpCDF	106
1,2,3,4,7,8,9-HpCDF	110
OCDF	99
2,3,7,8-TCDD	99
1,2,3,7,8-PeCDD	98
1,2,3,4,7,8-HxCDD	99
1,2,3,6,7,8-HxCDD	88
1,2,3,7,8,9-HxCDD	103
1,2,3,4,6,7,8-HpCDD	113
OCDD	102

Table 4: PCB 13C-recoveries (n=6)

Congeneres:	13C rec [%]
PCB 28	87
PCB 52	87
PCB 77	96
PCB 81	90
PCB 101	93
PCB 123	97
PCB 118	96
PCB 114	97
PCB 105	103
PCB 126	95
PCB 153	96
PCB 138	101
PCB 167	106
PCB 156	102
PCB 157	104
PCB 169	100
PCB 180	99
PCB 189	100

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

