

# Quality Control Certificate

**Product:** Universal Column

**Product No.:** 19511

**Lot No.:** 716948

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

**Description:** The universal column is part of a 3- or 4-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:	0,46	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,036	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	14,72	pg/column
	(crit: <	100 pg/column)

**Results Recoveries:**

PCDD/F	84	to	114	%	(crit: 70	to	120)
PCB	75	to	103	%	(crit: 70	to	120)

This is to certify that universal column, Lot 716948, passed the required test specifications and is released for sale.

date: 21.07.2022 sign.: \_\_\_\_\_

*T. Kehmeier*

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



**Hazards:** NOT FOR HUMAN OR DRUG USE!

The universal column is designed and prepared for usage with the alumina/florisil 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:** Our suppliers maintain the highest standard of quality, however due to the high temperature necessary for several steps in the production, some small charred particles may be visible within a batch of silica or filters without any effect on the clean-up.

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**Results:**

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=10)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,06
1,2,3,7,8-PeCDF	0,1
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,063
1,2,3,6,7,8-HxCDF	0,133
2,3,4,6,7,8-HxCDF	0,17
1,2,3,7,8,9-HxCDF	0,2
1,2,3,4,6,7,8-HpCDF	0,37
1,2,3,4,7,8,9-HpCDF	0,108
OCDF	0,16
2,3,7,8-TCDD	0,08
1,2,3,7,8-PeCDD	0,1
1,2,3,4,7,8-HxCDD	1,326
1,2,3,6,7,8-HxCDD	0,33
1,2,3,7,8,9-HxCDD	0,171
1,2,3,4,6,7,8-HpCDD	0,21
OCDD	0,84

TEQ (WHO 2005)	
lower bound	0,46
upper bound	0,46

Table 2: PCB blank (n=10)

Congeneres:	[pg/column]:
PCB 28	1,82
PCB 52	2,22
PCB 77	0,41
PCB 81	0,26
PCB 101	2,06
PCB 123	1,1705
PCB 118	2,22
PCB 114	0,8927
PCB 105	1,6
PCB 126	0,2883
PCB 153	2,75
PCB 138	2,16
PCB 167	2,094
PCB 156	0,98
PCB 157	0,819
PCB 169	0,231
PCB 180	1,62
PCB 189	3,024

TEQ (WHO 2005)	
lower bound	0,0362
upper bound	0,0362

Sum DIN PCB	14,72
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**Results:**

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=10)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	100
1,2,3,7,8-PeCDF	98
2,3,4,7,8-PeCDF	100
1,2,3,4,7,8-HxCDF	86
1,2,3,6,7,8-HxCDF	96
2,3,4,6,7,8-HxCDF	94
1,2,3,7,8,9-HxCDF	114
1,2,3,4,6,7,8-HpCDF	110
1,2,3,4,7,8,9-HpCDF	105
OCDF	104
2,3,7,8-TCDD	94
1,2,3,7,8-PeCDD	101
1,2,3,4,7,8-HxCDD	104
1,2,3,6,7,8-HxCDD	84
1,2,3,7,8,9-HxCDD	96
1,2,3,4,6,7,8-HpCDD	108
OCDD	98

Table 4: PCB 13C-recoveries (n=10)

Congeneres:	13C rec [%]
PCB 28	96
PCB 52	93
PCB 77	103
PCB 81	90
PCB 101	99
PCB 123	87
PCB 118	81
PCB 114	92
PCB 105	88
PCB 126	94
PCB 153	93
PCB 138	96
PCB 167	75
PCB 156	81
PCB 157	75
PCB 169	94
PCB 180	93
PCB 189	78

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