

# Quality Control Certificate

**Product:** Standard Column

**Product No.:** 19512

**Lot No.:** 717230

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

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**Description:** The Standard Column is part of a 3- or 4-column setup for the sample cleanup of environmental-, food- / feed- and similar matrices. It is designed for the analysis of polychlorinated dibenzo-p-dioxins (PCDD), polychlorinated dibenzofurans (PCDF) and polychlorinated biphenyl (PCB) congeners with the DEXTech systems from LCTech GmbH

## 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 D-EVA 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:	0,26	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,015	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	4,5	pg/column
	(crit: <	100 pg/column)

**Results Recoveries:**

PCDD/F	85	to	105	%	(crit: 70 to 120 )
PCB	78	to	105	%	(crit: 70 to 120 )

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This is to certify that the 19512, Lot 717230, passed the required test specifications and is released for sale.

date: 09.09.2022 sign.: \_\_\_\_\_

*T. Kehmeier*

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



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

The Standard Column is designed and prepared for usage with the Alumina/Florisil 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=7)

Table 2: PCB blank (n=7)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,07
1,2,3,7,8-PeCDF	0,11
2,3,4,7,8-PeCDF	0,12
1,2,3,4,7,8-HxCDF	0,057
1,2,3,6,7,8-HxCDF	0,03
2,3,4,6,7,8-HxCDF	0,07
1,2,3,7,8,9-HxCDF	0,06
1,2,3,4,6,7,8-HpCDF	0,08
1,2,3,4,7,8,9-HpCDF	0,106
OCDF	0,07
2,3,7,8-TCDD	0,07
1,2,3,7,8-PeCDD	0,09
1,2,3,4,7,8-HxCDD	<0,027
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,127
1,2,3,4,6,7,8-HpCDD	0,15
OCDD	0,29

Congeneres:	[pg/column]:
PCB 28	0,84
PCB 52	0,95
PCB 77	0,06
PCB 81	0,044
PCB 101	0,75
PCB 123	0,2003
PCB 118	0,41
PCB 114	0,1634
PCB 105	0,36
PCB 126	0,136
PCB 153	0,82
PCB 138	0,43
PCB 167	0,346
PCB 156	0,24
PCB 157	0,238
PCB 169	0,037
PCB 180	0,39
PCB 189	0,421

TEQ (WHO 2005)	
lower bound	0,26
upper bound	0,26

TEQ (WHO 2005)	
lower bound	0,0148
upper bound	0,0148

Sum DIN PCB	4,5
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**Results:**

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=7)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	94
1,2,3,7,8-PeCDF	94
2,3,4,7,8-PeCDF	92
1,2,3,4,7,8-HxCDF	89
1,2,3,6,7,8-HxCDF	100
2,3,4,6,7,8-HxCDF	97
1,2,3,7,8,9-HxCDF	96
1,2,3,4,6,7,8-HpCDF	105
1,2,3,4,7,8,9-HpCDF	103
OCDF	102
2,3,7,8-TCDD	85
1,2,3,7,8-PeCDD	104
1,2,3,4,7,8-HxCDD	105
1,2,3,6,7,8-HxCDD	87
1,2,3,7,8,9-HxCDD	102
1,2,3,4,6,7,8-HpCDD	96
OCDD	94

Table 4: PCB 13C-recoveries (n=7)

Congeneres:	13C rec [%]
PCB 28	91
PCB 52	93
PCB 77	99
PCB 81	94
PCB 101	97
PCB 123	83
PCB 118	78
PCB 114	88
PCB 105	81
PCB 126	99
PCB 153	94
PCB 138	95
PCB 167	78
PCB 156	81
PCB 157	78
PCB 169	105
PCB 180	92
PCB 189	93

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