

# Quality Control Certificate

**Product:** Standard Column

**Product No.:** 19512

**Lot No.:** 716515

**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 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:	0,07	pg/column
	(crit: < 0,7	pg/column)
dl-PCB-TEQ:	0,003	pg/column
	(crit: < 0,05	pg/column)
Sum Indikator PCB:	10,64	pg/column
	(crit: < 100	pg/column)

**Results Recoveries:**

PCDD/F	85	to	109	%	(crit: 70 to 120 )
PCB	76	to	101	%	(crit: 70 to 120 )

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This is to certify that standard column, Lot 716515, passed the required test specifications and is released for sale.

date: 21.03.2022 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 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=3)

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	<dl
1,2,3,6,7,8-HxCDF	<0,018
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	<0,054
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	<0,054
1,2,3,4,7,8-HxCDD	<0,027
1,2,3,6,7,8-HxCDD	<dl
1,2,3,7,8,9-HxCDD	0,027
1,2,3,4,6,7,8-HpCDD	<0,09
OCDD	0,48

TEQ (WHO 2005)	
lower bound	0,07
upper bound	0,09

Table 2: PCB blank (n=3)

Congeneres:	[pg/column]:
PCB 28	1,89
PCB 52	3,3
PCB 77	0,18
PCB 81	<0,027
PCB 101	2,05
PCB 123	0,23
PCB 118	0,73
PCB 114	0,1834
PCB 105	0,28
PCB 126	0,0265
PCB 153	1,52
PCB 138	1,11
PCB 167	0,402
PCB 156	0,28
PCB 157	0,227
PCB 169	<0,027
PCB 180	0,37
PCB 189	0,266

TEQ (WHO 2005)	
lower bound	0,0031
upper bound	0,0031

Sum DIN PCB	10,64
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**Results:**

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	85
1,2,3,7,8-PeCDF	92
2,3,4,7,8-PeCDF	96
1,2,3,4,7,8-HxCDF	96
1,2,3,6,7,8-HxCDF	101
2,3,4,6,7,8-HxCDF	104
1,2,3,7,8,9-HxCDF	109
1,2,3,4,6,7,8-HpCDF	93
1,2,3,4,7,8,9-HpCDF	95
OCDF	98
2,3,7,8-TCDD	87
1,2,3,7,8-PeCDD	93
1,2,3,4,7,8-HxCDD	109
1,2,3,6,7,8-HxCDD	87
1,2,3,7,8,9-HxCDD	107
1,2,3,4,6,7,8-HpCDD	90
OCDD	90

Table 4: PCB 13C-recoveries (n=3)

Congeneres:	13C rec [%]
PCB 28	96
PCB 52	100
PCB 77	87
PCB 81	82
PCB 101	97
PCB 123	91
PCB 118	82
PCB 114	94
PCB 105	86
PCB 126	76
PCB 153	95
PCB 138	101
PCB 167	83
PCB 156	88
PCB 157	84
PCB 169	82
PCB 180	95
PCB 189	85

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