

Quality Control Certificate

Product: Smart Column**Product No.:** 19513**Lot No.:** 717128**Storage Recommendations:** Store the column at room temperature below 25°C

Description: The Smart Column is part of a 3-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:	0,6	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,042	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	22,32	pg/column
	(crit: <	100 pg/column)

Results Recoveries:

PCDD/F	71	to	95	%	(crit: 70 to 120)
PCB	89	to	120	%	(crit: 70 to 120)

This is to certify that the 19513, Lot 717128, passed the required test specifications and is released for sale.

date: 22.07.2022 sign.: _____*T. Kehmeier*

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



Hazards: NOT FOR HUMAN OR DRUG USE!

The Smart 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	0,13
1,2,3,7,8-PeCDF	0,25
2,3,4,7,8-PeCDF	0,26
1,2,3,4,7,8-HxCDF	0,054
1,2,3,6,7,8-HxCDF	0,095
2,3,4,6,7,8-HxCDF	0,13
1,2,3,7,8,9-HxCDF	0,26
1,2,3,4,6,7,8-HpCDF	0,13
1,2,3,4,7,8,9-HpCDF	0,1
OCDF	0,22
2,3,7,8-TCDD	0,06
1,2,3,7,8-PeCDD	0,25
1,2,3,4,7,8-HxCDD	0,867
1,2,3,6,7,8-HxCDD	0,31
1,2,3,7,8,9-HxCDD	0,188
1,2,3,4,6,7,8-HpCDD	0,22
OCDD	0,37

Congeneres:	[pg/column]:
PCB 28	3,42
PCB 52	3,85
PCB 77	0,37
PCB 81	0,295
PCB 101	3,6
PCB 123	1,4028
PCB 118	2,69
PCB 114	1,5189
PCB 105	2,3
PCB 126	0,3614
PCB 153	2,42
PCB 138	3,38
PCB 167	2,517
PCB 156	1,16
PCB 157	0,917
PCB 169	0,173
PCB 180	3,13
PCB 189	4,512

TEQ (WHO 2005)	
lower bound	0,6
upper bound	0,6

TEQ (WHO 2005)	
lower bound	0,0419
upper bound	0,0419

Sum DIN PCB	22,32
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Results:

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	85
1,2,3,7,8-PeCDF	86
2,3,4,7,8-PeCDF	86
1,2,3,4,7,8-HxCDF	71
1,2,3,6,7,8-HxCDF	76
2,3,4,6,7,8-HxCDF	78
1,2,3,7,8,9-HxCDF	78
1,2,3,4,6,7,8-HpCDF	94
1,2,3,4,7,8,9-HpCDF	95
OCDF	88
2,3,7,8-TCDD	79
1,2,3,7,8-PeCDD	88
1,2,3,4,7,8-HxCDD	78
1,2,3,6,7,8-HxCDD	77
1,2,3,7,8,9-HxCDD	75
1,2,3,4,6,7,8-HpCDD	93
OCDD	86

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

Congeneres:	13C rec [%]
PCB 28	119
PCB 52	117
PCB 77	96
PCB 81	89
PCB 101	120
PCB 123	102
PCB 118	95
PCB 114	106
PCB 105	95
PCB 126	90
PCB 153	119
PCB 138	118
PCB 167	103
PCB 156	105
PCB 157	100
PCB 169	91
PCB 180	118
PCB 189	101

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