

Quality Control Certificate

Product: Smart Column**Product No.:** 14307**Lot No.:** 3000251**Storage Recommendations:** Store the column at room temperature below 25°C

Description: The smart 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:	0,69	pg/column
	(crit: < 0,7	pg/column)
dl-PCB-TEQ:	0,01	pg/column
	(crit: < 0,05	pg/column)
Sum Indikator PCB:	12,54	pg/column
	(crit: < 100	pg/column)

Results Recoveries:

PCDD/F	78	to	107	%	(crit: 70 to 120)
PCB	81	to	112	%	(crit: 70 to 120)

This is to certify that smart column, Lot 3000251, passed the required test specifications and is released for sale.

date: 26.05.2021 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 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=5)

Table 2: PCB blank (n=5)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,07
1,2,3,7,8-PeCDF	0,33
2,3,4,7,8-PeCDF	0,32
1,2,3,4,7,8-HxCDF	0,184
1,2,3,6,7,8-HxCDF	0,149
2,3,4,6,7,8-HxCDF	0,17
1,2,3,7,8,9-HxCDF	0,29
1,2,3,4,6,7,8-HpCDF	0,18
1,2,3,4,7,8,9-HpCDF	0,123
OCDF	1,77
2,3,7,8-TCDD	0,08
1,2,3,7,8-PeCDD	0,36
1,2,3,4,7,8-HxCDD	0,156
1,2,3,6,7,8-HxCDD	0,22
1,2,3,7,8,9-HxCDD	0,198
1,2,3,4,6,7,8-HpCDD	0,13
OCDD	0,4

Congeneres:	[pg/column]:
PCB 28	1,46
PCB 52	3,8
PCB 77	<0,045
PCB 81	<0,027
PCB 101	2,48
PCB 123	0,0201
PCB 118	0,66
PCB 114	0,0818
PCB 105	<0,081
PCB 126	0,083
PCB 153	2,75
PCB 138	1,57
PCB 167	<dl
PCB 156	0,61
PCB 157	0,1
PCB 169	0,043
PCB 180	0,48
PCB 189	0,434

TEQ (WHO 2005)	
lower bound	0,69
upper bound	0,69

TEQ (WHO 2005)	
lower bound	0,0097
upper bound	0,0097

Sum DIN PCB	12,54
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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=5)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	96
1,2,3,7,8-PeCDF	95
2,3,4,7,8-PeCDF	94
1,2,3,4,7,8-HxCDF	97
1,2,3,6,7,8-HxCDF	101
2,3,4,6,7,8-HxCDF	94
1,2,3,7,8,9-HxCDF	98
1,2,3,4,6,7,8-HpCDF	107
1,2,3,4,7,8,9-HpCDF	104
OCDF	96
2,3,7,8-TCDD	88
1,2,3,7,8-PeCDD	89
1,2,3,4,7,8-HxCDD	91
1,2,3,6,7,8-HxCDD	78
1,2,3,7,8,9-HxCDD	94
1,2,3,4,6,7,8-HpCDD	101
OCDD	96

Table 4: PCB 13C-recoveries (n=5)

Congeneres:	13C rec [%]
PCB 28	88
PCB 52	101
PCB 77	106
PCB 81	104
PCB 101	94
PCB 123	81
PCB 118	83
PCB 114	86
PCB 105	81
PCB 126	101
PCB 153	102
PCB 138	112
PCB 167	96
PCB 156	86
PCB 157	90
PCB 169	101
PCB 180	103
PCB 189	82

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