

Quality Control Certificate

Product: Carbon Column Pos.4
Product No.: 14090
Lot No.: 713283

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

Description: The carbon column is part of a 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-up on a DEXTech Plus system, spiked with recovery standard, evaporated via DEva and has been quantified with a HRGC/HRMS with a resolution of R > 10000.

Results Blank Value:

PCDD/F-TEQ:	0,39	pg/column
	(crit: <	0,7 pg/column
dl-PCB-TEQ:	n/a	pg/column
	(crit: <	n/a pg/column
Sum Indikator PCB:	n/a	pg/column
	(crit: <	n/a pg/column

Results Recoveries:

PCDD/F	88	to	103	% (crit: 70 to 120)
PCB	91	to	98	% (crit: 70 to 120)

This is to certify that carbon column pos. 4, Lot 713283, passed the required test specifications and is released for sale.

date: 05.11.2020 sign.: T. Kehmeier

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



Hazards: NOT FOR HUMAN OR DRUG USE!

The carbon column is designed and prepared for usage with the alumina/florisil column and universal/standard & smart 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: n/a

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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	0,1
1,2,3,7,8-PeCDF	0,1
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,038
1,2,3,6,7,8-HxCDF	0,058
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	0,09
1,2,3,4,7,8,9-HpCDF	0,066
OCDF	1,92
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,32
1,2,3,4,7,8-HxCDD	0,04
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,065
1,2,3,4,6,7,8-HpCDD	0,15
OCDD	0,67

Congeneres:	[pg/column]:
PCB 28	
PCB 52	
PCB 77	0,05
PCB 81	<0,027
PCB 101	
PCB 123	
PCB 118	
PCB 114	
PCB 105	
PCB 126	0,1779
PCB 153	
PCB 138	
PCB 167	
PCB 156	
PCB 157	
PCB 169	0,069
PCB 180	
PCB 189	

TEQ (WHO 2005)	
lower bound	0,39
upper bound	0,4

TEQ (WHO 2005)	
lower bound	n/a
upper bound	n/a

Sum DIN PCB	n/a
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Results:

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	94
1,2,3,7,8-PeCDF	102
2,3,4,7,8-PeCDF	98
1,2,3,4,7,8-HxCDF	103
1,2,3,6,7,8-HxCDF	98
2,3,4,6,7,8-HxCDF	94
1,2,3,7,8,9-HxCDF	99
1,2,3,4,6,7,8-HpCDF	97
1,2,3,4,7,8,9-HpCDF	91
OCDF	91
2,3,7,8-TCDD	96
1,2,3,7,8-PeCDD	103
1,2,3,4,7,8-HxCDD	99
1,2,3,6,7,8-HxCDD	100
1,2,3,7,8,9-HxCDD	103
1,2,3,4,6,7,8-HpCDD	92
OCDD	88

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

Congeneres:	13C rec [%]
PCB 28	
PCB 52	
PCB 77	98
PCB 81	91
PCB 101	
PCB 123	
PCB 118	
PCB 114	
PCB 105	
PCB 126	94
PCB 153	
PCB 138	
PCB 167	
PCB 156	
PCB 157	
PCB 169	97
PCB 180	
PCB 189	

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