

Quality Control Certificate

Product: Carbon Column

Product No.: 15242

Lot No.: 713448

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

Description: The carbon 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-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:	0,1	pg/column
	(crit: <	0,7 pg/column
dl-PCB-TEQ:	0,004	pg/column
	(crit: <	0,05 pg/column
Sum Indikator PCB:	3,6	pg/column
	(crit: <	100 pg/column

Results Recoveries:

PCDD/F	93	to	110	%	(crit: 70 to 120)
PCB	81	to	107	%	(crit: 70 to 120)

This is to certify that carbon column, Lot 713448, passed the required test specifications and is released for sale.

date: 21.08.2020 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=11)

Table 2: PCB blank (n=11)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	<dl
1,2,3,7,8-PeCDF	0,07
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,042
1,2,3,6,7,8-HxCDF	0,028
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	0,025
OCDF	0,07
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,06
1,2,3,4,7,8-HxCDD	0,031
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,027
1,2,3,4,6,7,8-HpCDD	<dl
OCDD	0,19

Congeneres:	[pg/column]:
PCB 28	1,31
PCB 52	1,02
PCB 77	0,05
PCB 81	<0,027
PCB 101	0,41
PCB 123	0,0958
PCB 118	0,25
PCB 114	0,0556
PCB 105	0,22
PCB 126	0,0276
PCB 153	0,32
PCB 138	0,34
PCB 167	0,096
PCB 156	0,15
PCB 157	0,08
PCB 169	<0,027
PCB 180	<0,18
PCB 189	0,097

TEQ (WHO 2005)	
lower bound	0,1
upper bound	0,11

TEQ (WHO 2005)	
lower bound	0,0035
upper bound	0,0035

Sum DIN PCB	3,6
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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=11)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	97
1,2,3,7,8-PeCDF	93
2,3,4,7,8-PeCDF	99
1,2,3,4,7,8-HxCDF	105
1,2,3,6,7,8-HxCDF	105
2,3,4,6,7,8-HxCDF	98
1,2,3,7,8,9-HxCDF	95
1,2,3,4,6,7,8-HpCDF	109
1,2,3,4,7,8,9-HpCDF	106
OCDF	104
2,3,7,8-TCDD	104
1,2,3,7,8-PeCDD	103
1,2,3,4,7,8-HxCDD	104
1,2,3,6,7,8-HxCDD	100
1,2,3,7,8,9-HxCDD	102
1,2,3,4,6,7,8-HpCDD	110
OCDD	106

Table 4: PCB 13C-recoveries (n=11)

Congeneres:	13C rec [%]
PCB 28	96
PCB 52	81
PCB 77	107
PCB 81	99
PCB 101	97
PCB 123	93
PCB 118	91
PCB 114	92
PCB 105	93
PCB 126	95
PCB 153	94
PCB 138	98
PCB 167	87
PCB 156	91
PCB 157	91
PCB 169	96
PCB 180	92
PCB 189	90

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