

Quality Control Certificate

Product: Carbon Column

Product No.: 15242

Lot No.: 713158

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:	0,34	pg/column
	(crit: <	0,7 pg/column
dl-PCB-TEQ:	0,002	pg/column
	(crit: <	0,05 pg/column
Sum Indikator PCB:	3,5	pg/column
	(crit: <	100 pg/column

Results Recoveries:

PCDD/F	86	to	114	%	(crit: 70 to 120)
PCB	85	to	116	%	(crit: 70 to 120)

This is to certify that carbon column, Lot 713158, passed the required test specifications and is released for sale.

date: 20.05.2020 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=10)

Table 2: PCB blank (n=10)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	0,26
2,3,4,7,8-PeCDF	0,13
1,2,3,4,7,8-HxCDF	0,13
1,2,3,6,7,8-HxCDF	0,11
2,3,4,6,7,8-HxCDF	0,1
1,2,3,7,8,9-HxCDF	0,09
1,2,3,4,6,7,8-HpCDF	0,08
1,2,3,4,7,8,9-HpCDF	0,076
OCDF	0,06
2,3,7,8-TCDD	0,05
1,2,3,7,8-PeCDD	0,16
1,2,3,4,7,8-HxCDD	0,13
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,104
1,2,3,4,6,7,8-HpCDD	<0,09
OCDD	0,15

Congeneres:	[pg/column]:
PCB 28	0,96
PCB 52	0,69
PCB 77	<0,045
PCB 81	<dl
PCB 101	0,52
PCB 123	0,0665
PCB 118	0,31
PCB 114	0,125
PCB 105	0,16
PCB 126	0,0158
PCB 153	0,45
PCB 138	0,47
PCB 167	0,094
PCB 156	0,29
PCB 157	0,071
PCB 169	<0,027
PCB 180	0,34
PCB 189	0,11

TEQ (WHO 2005)	
lower bound	0,34
upper bound	0,34

TEQ (WHO 2005)	
lower bound	0,0021
upper bound	0,0021

Sum DIN PCB	3,5
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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=10)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	87
1,2,3,7,8-PeCDF	94
2,3,4,7,8-PeCDF	92
1,2,3,4,7,8-HxCDF	95
1,2,3,6,7,8-HxCDF	95
2,3,4,6,7,8-HxCDF	86
1,2,3,7,8,9-HxCDF	91
1,2,3,4,6,7,8-HpCDF	114
1,2,3,4,7,8,9-HpCDF	109
OCDF	109
2,3,7,8-TCDD	107
1,2,3,7,8-PeCDD	95
1,2,3,4,7,8-HxCDD	101
1,2,3,6,7,8-HxCDD	95
1,2,3,7,8,9-HxCDD	97
1,2,3,4,6,7,8-HpCDD	112
OCDD	105

Table 4: PCB 13C-recoveries (n=10)

Congeneres:	13C rec [%]
PCB 28	99
PCB 52	93
PCB 77	106
PCB 81	101
PCB 101	96
PCB 123	89
PCB 118	85
PCB 114	97
PCB 105	88
PCB 126	116
PCB 153	97
PCB 138	97
PCB 167	87
PCB 156	86
PCB 157	85
PCB 169	109
PCB 180	98
PCB 189	85

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