

Quality Control Certificate

Product: Carbon Column

Product No.: 15242

Lot No.: 715975

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 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:	0,13	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,003	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	9,7	pg/column
	(crit: <	100 pg/column)

Results Recoveries:

PCDD/F	81	to	102	%	(crit: 70 to 120)
PCB	74	to	102	%	(crit: 70 to 120)

This is to certify that the carbon column, Lot 715975, passed the required test specifications and is released for sale.

date: 15.04.2022 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=6)

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	0,05
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	<0,027
1,2,3,6,7,8-HxCDF	<dl
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	<0,018
OCDF	0,06
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,06
1,2,3,4,7,8-HxCDD	<0,027
1,2,3,6,7,8-HxCDD	<0,108
1,2,3,7,8,9-HxCDD	0,029
1,2,3,4,6,7,8-HpCDD	0,12
OCDD	0,59

Congeneres:	[pg/column]:
PCB 28	2,63
PCB 52	2,49
PCB 77	0,05
PCB 81	<0,027
PCB 101	1,22
PCB 123	0,2862
PCB 118	0,69
PCB 114	0,2125
PCB 105	0,61
PCB 126	0,0199
PCB 153	1,31
PCB 138	0,96
PCB 167	0,303
PCB 156	0,32
PCB 157	0,155
PCB 169	<0,027
PCB 180	0,82
PCB 189	0,213

TEQ (WHO 2005)	
lower bound	0,13
upper bound	0,13

TEQ (WHO 2005)	
lower bound	0,0026
upper bound	0,0026

Sum DIN PCB	9,7
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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=6)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	90
1,2,3,7,8-PeCDF	94
2,3,4,7,8-PeCDF	97
1,2,3,4,7,8-HxCDF	81
1,2,3,6,7,8-HxCDF	96
2,3,4,6,7,8-HxCDF	89
1,2,3,7,8,9-HxCDF	86
1,2,3,4,6,7,8-HpCDF	101
1,2,3,4,7,8,9-HpCDF	93
OCDF	93
2,3,7,8-TCDD	97
1,2,3,7,8-PeCDD	102
1,2,3,4,7,8-HxCDD	81
1,2,3,6,7,8-HxCDD	85
1,2,3,7,8,9-HxCDD	101
1,2,3,4,6,7,8-HpCDD	99
OCDD	89

Table 4: PCB 13C-recoveries (n=6)

Congeneres:	13C rec [%]
PCB 28	91
PCB 52	92
PCB 77	87
PCB 81	80
PCB 101	99
PCB 123	88
PCB 118	81
PCB 114	95
PCB 105	74
PCB 126	89
PCB 153	99
PCB 138	101
PCB 167	79
PCB 156	85
PCB 157	81
PCB 169	90
PCB 180	102
PCB 189	83

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