

Quality Control Certificate

Product: **Carbon Column**
 Product No.: 20777
 Lot No.: **718209**

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 with the D-EVA 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:	0,14	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,0101	pg/column
	(crit: <	0,05	pg/column)
	Sum Total PCB:	10,9	pg/column
	(crit: <	300	pg/column)

Results Recoveries:	PCDD/F	77	to	105	%	(crit: 70	to	120	%)
	PCB	73	to	99	%	(crit: 70	to	120	%)

This is to certify that the Carbon Column, Lot 718209, passed the required test specifications and is released for sale.

date: 24.08.2023 sign.: T. Keshmeir

The company LCTech GmbH is certified according to ISO 9001



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Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>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.</p>
Quality Control:	<p>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.</p>
Quality Management:	<p>This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)</p>
Documentation / Data Attached:	<p>table 1 & 2: blankvalues of PCDD/F and PCB table 3 & 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>This is to certify that the Carbon Column, Lot , passed the required test specifications and is released for sale.</p>
Remarks	<p>n/a</p>



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Results:

Lockmass check: No significant disturbances, or indicators for contaminations are detected.

Blanks: n= 12

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	0,06
1,2,3,7,8-PeCDF	0,12
2,3,4,7,8-PeCDF	0,12
1,2,3,4,7,8-HxCDF	<0,027
1,2,3,6,7,8-HxCDF	0,037
2,3,4,6,7,8-HxCDF	<0,045
1,2,3,7,8,9-HxCDF	0,07
1,2,3,4,6,7,8-HpCDF	<dl
1,2,3,4,7,8,9-HpCDF	<0,018
1,2,3,4,6,7,8,9-OCDF	0,07
2,3,7,8-TCDD	0,04
1,2,3,7,8-PeCDD	<0,054
1,2,3,4,7,8-HxCDD	0,029
1,2,3,6,7,8-HxCDD	<dl
1,2,3,7,8,9-HxCDD	0,085
1,2,3,4,6,7,8-HpCDD	<0,09
1,2,3,4,6,7,8,9-OCDD	0,35

Table 2: PCB blank

	[pg/column]
PCB-#28	3,2
PCB-#52	3,23
PCB-#101	1,63
PCB-#153	1,73
PCB-#138	0,64
PCB-#180	0,433
PCB-#81	0,04
PCB-#77	0,364
PCB-#126	0,0475
PCB-#169	0,173
PCB-#123	<0,18
PCB-#118	0,7
PCB-#114	0,574
PCB-#105	0,66
PCB-#167	0,267
PCB-#156	0,54
PCB-#157	0,3
PCB-#189	0,524

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,13
upper bound	0,14

PCB-TEQ	[pg/column]
lower bound	0,0101
upper bound	0,0101
Sum DIN	10,9

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	91	9
	1,2,3,7,8-PeCDF	89	20
	2,3,4,7,8-PeCDF	85	17
	1,2,3,4,7,8-HxCDF	94	11
	1,2,3,6,7,8-HxCDF	105	10
	2,3,4,6,7,8-HxCDF	100	9
	1,2,3,7,8,9-HxCDF	97	8
	1,2,3,4,6,7,8-HpCDF	96	9
	1,2,3,4,7,8,9-HpCDF	83	9
	1,2,3,4,6,7,8,9-OCDF	85	6
	2,3,7,8-TCDD	77	15
	1,2,3,7,8-PeCDD	82	20
	1,2,3,4,7,8-HxCDD	97	10
	1,2,3,6,7,8-HxCDD	85	9
	1,2,3,7,8,9-HxCDD	97	12
	1,2,3,4,6,7,8-HpCDD	86	8
	1,2,3,4,6,7,8,9-OCDD	77	7

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	98	6
	PCB-#52	96	6
	PCB-#101	97	4
	PCB-#153	99	4
	PCB-#138	93	6
	PCB-#180	91	6
	PCB-#81	79	12
	PCB-#77	77	15
	PCB-#126	74	13
	PCB-#169	73	18
	PCB-#123	83	8
	PCB-#118	79	8
	PCB-#114	84	7
	PCB-#105	79	6
	PCB-#167	81	10
	PCB-#156	82	11
	PCB-#157	82	11
	PCB-#189	76	12