

Quality Control Certificate

Product: **Carbon Column**
 Product No.: 20777
 Lot No.: **719790**

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:	0,46	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,0231	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	3,6	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	76	to	100	%	(crit: 70	to	120	%)
	PCB	83	to	97	%	(crit: 70	to	120	%)

This is to certify that the Carbon Column, Lot 719790, passed the required test specifications and is released for sale.

date: 14.03.2024 sign.: M. Bradis

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= 6

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	0,17
1,2,3,7,8-PeCDF	0,19
2,3,4,7,8-PeCDF	0,25
1,2,3,4,7,8-HxCDF	0,07
1,2,3,6,7,8-HxCDF	0,055
2,3,4,6,7,8-HxCDF	0,07
1,2,3,7,8,9-HxCDF	0,14
1,2,3,4,6,7,8-HpCDF	0,14
1,2,3,4,7,8,9-HpCDF	0,14
1,2,3,4,6,7,8,9-OCDF	0,09
2,3,7,8-TCDD	0,13
1,2,3,7,8-PeCDD	0,16
1,2,3,4,7,8-HxCDD	0,1
1,2,3,6,7,8-HxCDD	0,15
1,2,3,7,8,9-HxCDD	0,082
1,2,3,4,6,7,8-HpCDD	0,17
1,2,3,4,6,7,8,9-OCDD	0,36

Table 2: PCB blank

	[pg/column]
PCB-#28	1,06
PCB-#52	1,07
PCB-#101	0,26
PCB-#153	0,24
PCB-#138	0,56
PCB-#180	0,412
PCB-#81	0,12
PCB-#77	0,14
PCB-#126	0,1858
PCB-#169	0,148
PCB-#123	<dl
PCB-#118	0,17
PCB-#114	0,148
PCB-#105	0,09
PCB-#167	0,123
PCB-#156	0,218
PCB-#157	0,12
PCB-#189	0,333

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,46
upper bound	0,46

PCB-TEQ	[pg/column]
lower bound	0,0231
upper bound	0,0231
Sum DIN	3,6

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	84	13
	1,2,3,7,8-PeCDF	85	15
	2,3,4,7,8-PeCDF	86	20
	1,2,3,4,7,8-HxCDF	83	3
	1,2,3,6,7,8-HxCDF	89	5
	2,3,4,6,7,8-HxCDF	88	4
	1,2,3,7,8,9-HxCDF	86	5
	1,2,3,4,6,7,8-HpCDF	91	5
	1,2,3,4,7,8,9-HpCDF	100	4
	1,2,3,4,6,7,8,9-OCDF	89	9
	2,3,7,8-TCDD	85	16
	1,2,3,7,8-PeCDD	89	18
	1,2,3,4,7,8-HxCDD	89	4
	1,2,3,6,7,8-HxCDD	76	3
	1,2,3,7,8,9-HxCDD	89	5
	1,2,3,4,6,7,8-HpCDD	87	9
	1,2,3,4,6,7,8,9-OCDD	84	10

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	97	2
	PCB-#52	94	17
	PCB-#101	93	6
	PCB-#153	96	2
	PCB-#138	92	6
	PCB-#180	91	7
	PCB-#81	83	4
	PCB-#77	85	9
	PCB-#126	84	17
	PCB-#169	86	26
	PCB-#123	87	9
	PCB-#118	88	6
	PCB-#114	88	8
	PCB-#105	86	6
	PCB-#167	89	8
	PCB-#156	95	11
	PCB-#157	92	13
	PCB-#189	90	5