

## Quality Control Certificate

Product: **Carbon Column**  
Product No.: 20777  
Lot No.: **721163**

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:	0,07	pg/column
	(crit: <	0,70 pg/column)
dl-PCB-TEQ:	0,0081	pg/column
	(crit: <	0,05 pg/column)
Sum Total PCB:	0	pg/column
	(crit: <	300 pg/column)

Results Recoveries:

PCDD/F	80	to	109	%	(crit: 70	to	120	%)
PCB	86	to	101	%	(crit: 70	to	120	%)

This is to certify that the Carbon Column, Lot 721163, passed the required test specifications and is released for sale.

date: 22.11.2024 sign.: 

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 &amp; 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 &amp; 2: blankvalues of PCDD/F and PCB table 3 &amp; 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	<0,036
1,2,3,7,8-PeCDF	<dl
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	<dl
1,2,3,6,7,8-HxCDF	<0,018
2,3,4,6,7,8-HxCDF	<dl
1,2,3,7,8,9-HxCDF	<0,045
1,2,3,4,6,7,8-HpCDF	0,13
1,2,3,4,7,8,9-HpCDF	<0,018
1,2,3,4,6,7,8,9-OCDF	<dl
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	<dl
1,2,3,4,7,8-HxCDD	0,029
1,2,3,6,7,8-HxCDD	0,14
1,2,3,7,8,9-HxCDD	<0,027
1,2,3,4,6,7,8-HpCDD	0,14
1,2,3,4,6,7,8,9-OCDD	1,76

Table 2: PCB blank

	[pg/column]
PCB-#28	<0,153
PCB-#52	<dl
PCB-#101	<dl
PCB-#153	<dl
PCB-#138	<dl
PCB-#180	<dl
PCB-#81	0,06
PCB-#77	0,075
PCB-#126	0,0695
PCB-#169	0,038
PCB-#123	<dl
PCB-#118	<dl
PCB-#114	0,007
PCB-#105	<dl
PCB-#167	<dl
PCB-#156	<dl
PCB-#157	<0,018
PCB-#189	0,012

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,04
upper bound	0,07

PCB-TEQ	[pg/column]
lower bound	0,0081
upper bound	0,0081
Sum DIN	0

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	89	4
	1,2,3,7,8-PeCDF	83	5
	2,3,4,7,8-PeCDF	81	4
	1,2,3,4,7,8-HxCDF	100	2
	1,2,3,6,7,8-HxCDF	109	2
	2,3,4,6,7,8-HxCDF	100	2
	1,2,3,7,8,9-HxCDF	101	3
	1,2,3,4,6,7,8-HpCDF	100	2
	1,2,3,4,7,8,9-HpCDF	80	3
	1,2,3,4,6,7,8,9-OCDF	88	2
	2,3,7,8-TCDD	80	2
	1,2,3,7,8-PeCDD	83	4
	1,2,3,4,7,8-HxCDD	106	4
	1,2,3,6,7,8-HxCDD	89	3
	1,2,3,7,8,9-HxCDD	106	3
	1,2,3,4,6,7,8-HpCDD	95	3
1,2,3,4,6,7,8,9-OCDD	81	2	

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	96	3
	PCB-#52	86	3
	PCB-#101	94	3
	PCB-#153	88	9
	PCB-#138	89	7
	PCB-#180	95	7
	PCB-#81	91	2
	PCB-#77	93	1
	PCB-#126	93	3
	PCB-#169	93	3
	PCB-#123	97	4
	PCB-#118	97	3
	PCB-#114	98	3
	PCB-#105	101	6
	PCB-#167	88	6
	PCB-#156	88	8
	PCB-#157	88	6
	PCB-#189	95	5