Quality Control Certificate

Product: **Carbon Column**

Product No.: 20777

Lot No.: 722246

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:	0,16	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0148	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	0	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	77	to	118	%	(crit:	70	to	120	%)
	PCB	77	to	120	%	(crit:	70	to	120	%)

This is to certify that the Carbon Column, Lot 722246, passed the required test specifications and is released for sale.

date: 31.07.2025 sign.: M. Bradis

The company LCTech GmbH is certified according to ISO 9001

LCTech GmbH
Daimlerstrasse 4, 84419 Obertaufkirchen
Germany

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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: blankvalues of PCDD/F and PCB table 3 & 4: 13C-Recoveries of PCDD/F and PCB
Analytics	This is to certify that the Carbon Column, Lot , passed the required test specifications and is released for sale.
Remarks	n/a

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Results:

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

Blanks: n= 6

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	<0,036
	1,2,3,7,8-PeCDF	0,06
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	0,064
	1,2,3,6,7,8-HxCDF	0,055
	2,3,4,6,7,8-HxCDF	0,05
	1,2,3,7,8,9-HxCDF	0,08
	1,2,3,4,6,7,8-HpCDF	0,08
	1,2,3,4,7,8,9-HpCDF	0,087
	1,2,3,4,6,7,8,9-OCDF	1,59
	2,3,7,8-TCDD	<0,036
	1,2,3,7,8-PeCDD	<0,054
	1,2,3,4,7,8-HxCDD	0,101
	1,2,3,6,7,8-HxCDD	0,11
	1,2,3,7,8,9-HxCDD	0,092
	1,2,3,4,6,7,8-HpCDD	0,13
	1,2,3,4,6,7,8,9-OCDD	0,32

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	<0,153
	PCB-#52	<dl
	PCB-#101	<dl
	PCB-#153	<dl
	PCB-#138	<dl
	PCB-#180	<dl
	PCB-#81	0,05
	PCB-#77	0,273
	PCB-#126	0,1083
	PCB-#169	0,13
	PCB-#123	0,05
	PCB-#118	<0,108
	PCB-#114	0,042
	PCB-#105	<0,081
	PCB-#167	0,034
	PCB-#156	<dl
	PCB-#157	0,03
	PCB-#189	0,027

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,16
upper bound	0,16

PCB-TEQ	[pg/column]
lower bound	0,0148
upper bound	0,0148
Sum DIN	0

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]		[%]	RSD [%]
	2,3,7,8-TCDF	96	1
	1,2,3,7,8-PeCDF	89	1
	2,3,4,7,8-PeCDF	86	1
	1,2,3,4,7,8-HxCDF	89	3
	1,2,3,6,7,8-HxCDF	94	2
	2,3,4,6,7,8-HxCDF	92	1
	1,2,3,7,8,9-HxCDF	91	2
	1,2,3,4,6,7,8-HpCDF	82	1
	1,2,3,4,7,8,9-HpCDF	93	5
	1,2,3,4,6,7,8,9-OCDF	91	4
	2,3,7,8-TCDD	88	2
	1,2,3,7,8-PeCDD	87	2
	1,2,3,4,7,8-HxCDD	92	2
	1,2,3,6,7,8-HxCDD	77	2
	1,2,3,7,8,9-HxCDD	90	2
	1,2,3,4,6,7,8-HpCDD	118	3
	1,2,3,4,6,7,8,9-OCDD	88	4

Table 4: PCB recoveries

PCB 13C Recoveries [%]		[%]	RSD [%]
	PCB-#28	109	3
	PCB-#52	107	5
	PCB-#101	104	2
	PCB-#153	82	17
	PCB-#138	77	12
	PCB-#180	92	4
	PCB-#81	106	2
	PCB-#77	114	3
	PCB-#126	120	0
	PCB-#169	117	4
	PCB-#123	99	2
	PCB-#118	94	3
	PCB-#114	102	4
	PCB-#105	99	6
	PCB-#167	118	6
	PCB-#156	119	7
	PCB-#157	116	8
	PCB-#189	115	13

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