Quality Control Certificate

Product: **Carbon Column**

Product No.: 20777

Lot No.: 722719

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:	0,15	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0051	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	0	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	78	to	106	%	(crit:	70	to	120	%)
	PCB	72	to	101	%	(crit:	70	to	120	%)

This is to certify that the Carbon Column, Lot 722719, passed the required test specifications and is released for sale.

date: 06.10.2025 sign.: T. Kehrmeier

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	<0,045
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	<0,027
	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	<dl
	1,2,3,4,7,8,9-HpCDF	<0,018
	1,2,3,4,6,7,8,9-OCDF	<0,054
	2,3,7,8-TCDD	<0,036
	1,2,3,7,8-PeCDD	0,1
	1,2,3,4,7,8-HxCDD	<0,027
	1,2,3,6,7,8-HxCDD	<dl
	1,2,3,7,8,9-HxCDD	<0,027
	1,2,3,4,6,7,8-HpCDD	<0,09
	1,2,3,4,6,7,8,9-OCDD	0,28

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,15
upper bound	0,15

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	<0,153
	PCB-#52	<0,144
	PCB-#101	<dl
	PCB-#153	<dl
	PCB-#138	<dl
	PCB-#180	<dl
	PCB-#81	0,05
	PCB-#77	0,386
	PCB-#126	0,0424
	PCB-#169	<0,027
	PCB-#123	0,02
	PCB-#118	<dl
	PCB-#114	0,004
	PCB-#105	<dl
	PCB-#167	<dl
	PCB-#156	<dl
	PCB-#157	<0,018
	PCB-#189	<0,0072

PCB-TEQ	[pg/column]
lower bound	0,0051
upper bound	0,0051
Sum DIN	0

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]		[%]	RSD [%]
	2,3,7,8-TCDF	92	3
	1,2,3,7,8-PeCDF	91	3
	2,3,4,7,8-PeCDF	100	7
	1,2,3,4,7,8-HxCDF	95	3
	1,2,3,6,7,8-HxCDF	106	2
	2,3,4,6,7,8-HxCDF	98	2
	1,2,3,7,8,9-HxCDF	100	6
	1,2,3,4,6,7,8-HpCDF	102	2
	1,2,3,4,7,8,9-HpCDF	93	3
	1,2,3,4,6,7,8,9-OCDF	88	3
	2,3,7,8-TCDD	92	2
	1,2,3,7,8-PeCDD	105	7
	1,2,3,4,7,8-HxCDD	99	3
	1,2,3,6,7,8-HxCDD	86	3
	1,2,3,7,8,9-HxCDD	102	5
	1,2,3,4,6,7,8-HpCDD	94	2
	1,2,3,4,6,7,8,9-OCDD	78	2

Table 4: PCB recoveries

PCB 13C Recoveries [%]		[%]	RSD [%]
	PCB-#28	98	8
	PCB-#52	99	6
	PCB-#101	101	2
	PCB-#153	98	3
	PCB-#138	96	1
	PCB-#180	99	2
	PCB-#81	89	3
	PCB-#77	90	5
	PCB-#126	87	8
	PCB-#169	100	14
	PCB-#123	88	10
	PCB-#118	82	12
	PCB-#114	96	6
	PCB-#105	84	13
	PCB-#167	77	13
	PCB-#156	82	10
	PCB-#157	75	13
	PCB-#189	72	13

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