Quality Control Certificate

Product: **Carbon Column**

Product No.: 20777

Lot No.: 723492

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:	0,05	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0015	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	13,1	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	78	to	105	%	(crit:	70	to	120	%)
	PCB	86	to	101	%	(crit:	70	to	120	%)

This is to certify that the Carbon Column, Lot 723492, passed the required test specifications and is released for sale.

date: 27.03.2026 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= 11

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	<dl
	1,2,3,7,8-PeCDF	<dl
	2,3,4,7,8-PeCDF	<dl
	1,2,3,4,7,8-HxCDF	<dl
	1,2,3,6,7,8-HxCDF	<dl
	2,3,4,6,7,8-HxCDF	<dl
	1,2,3,7,8,9-HxCDF	<dl
	1,2,3,4,6,7,8-HpCDF	<dl
	1,2,3,4,7,8,9-HpCDF	<dl
	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	<dl
	1,2,3,6,7,8-HxCDD	<dl
	1,2,3,7,8,9-HxCDD	<dl
	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
upper bound	0,05

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	5,06
	PCB-#52	5,82
	PCB-#101	1,18
	PCB-#153	0,47
	PCB-#138	0,53
	PCB-#180	<0,18
	PCB-#81	0,14
	PCB-#77	0,205
	PCB-#126	0,0138
	PCB-#169	<dl
	PCB-#123	0,02
	PCB-#118	0,63
	PCB-#114	0,016
	PCB-#105	0,18
	PCB-#167	<0,027
	PCB-#156	<dl
	PCB-#157	0,02
	PCB-#189	0,034

PCB-TEQ	[pg/column]
lower bound	0,0015
upper bound	0,0018
Sum DIN	13,1

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	90	4
1,2,3,7,8-PeCDF	91	4
2,3,4,7,8-PeCDF	93	3
1,2,3,4,7,8-HxCDF	98	4
1,2,3,6,7,8-HxCDF	105	4
2,3,4,6,7,8-HxCDF	99	3
1,2,3,7,8,9-HxCDF	98	3
1,2,3,4,6,7,8-HpCDF	105	2
1,2,3,4,7,8,9-HpCDF	78	6
1,2,3,4,6,7,8,9-OCDF	91	3
2,3,7,8-TCDD	86	6
1,2,3,7,8-PeCDD	93	3
1,2,3,4,7,8-HxCDD	104	3
1,2,3,6,7,8-HxCDD	89	3
1,2,3,7,8,9-HxCDD	101	3
1,2,3,4,6,7,8-HpCDD	97	4
1,2,3,4,6,7,8,9-OCDD	84	3

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	91	2
PCB-#52	91	7
PCB-#101	101	14
PCB-#153	87	6
PCB-#138	91	5
PCB-#180	86	8
PCB-#81	96	12
PCB-#77	96	6
PCB-#126	94	13
PCB-#169	96	9
PCB-#123	86	19
PCB-#118	98	10
PCB-#114	99	10
PCB-#105	98	11
PCB-#167	91	3
PCB-#156	86	16
PCB-#157	88	12
PCB-#189	86	5

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