Quality Control Certificate

Product: **Carbon Column**

Product No.: 20777

Lot No.: 720789

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:	0,11	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0077	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	8,7	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	81	to	98	%	(crit:	70	to	120	%)
	PCB	75	to	109	%	(crit:	70	to	120	%)

This is to certify that the Carbon Column, Lot 720789, passed the required test specifications and is released for sale.

date: 21.10.2024 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	0,06
	1,2,3,7,8-PeCDF	<0,045
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	0,038
	1,2,3,6,7,8-HxCDF	0,028
	2,3,4,6,7,8-HxCDF	0,06
	1,2,3,7,8,9-HxCDF	<0,045
	1,2,3,4,6,7,8-HpCDF	<0,063
	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	<dl
	1,2,3,4,7,8-HxCDD	0,109
	1,2,3,6,7,8-HxCDD	0,18
	1,2,3,7,8,9-HxCDD	0,098
	1,2,3,4,6,7,8-HpCDD	<0,09
	1,2,3,4,6,7,8,9-OCDD	<0,108

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,09
upper bound	0,11

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	3,11
	PCB-#52	2,93
	PCB-#101	0,68
	PCB-#153	1,2
	PCB-#138	0,8
	PCB-#180	<0,18
	PCB-#81	<0,027
	PCB-#77	<0,045
	PCB-#126	0,0643
	PCB-#169	0,036
	PCB-#123	<dl
	PCB-#118	0,56
	PCB-#114	0,989
	PCB-#105	0,32
	PCB-#167	0,235
	PCB-#156	1,27
	PCB-#157	0,83
	PCB-#189	0,518

PCB-TEQ	[pg/column]
lower bound	0,0077
upper bound	0,0077
Sum DIN	8,7

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	90	2
1,2,3,7,8-PeCDF	86	6
2,3,4,7,8-PeCDF	83	10
1,2,3,4,7,8-HxCDF	88	4
1,2,3,6,7,8-HxCDF	98	5
2,3,4,6,7,8-HxCDF	91	7
1,2,3,7,8,9-HxCDF	91	5
1,2,3,4,6,7,8-HpCDF	94	3
1,2,3,4,7,8,9-HpCDF	94	7
1,2,3,4,6,7,8,9-OCDF	92	3
2,3,7,8-TCDD	86	5
1,2,3,7,8-PeCDD	87	8
1,2,3,4,7,8-HxCDD	96	7
1,2,3,6,7,8-HxCDD	81	5
1,2,3,7,8,9-HxCDD	94	6
1,2,3,4,6,7,8-HpCDD	95	3
1,2,3,4,6,7,8,9-OCDD	85	3

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	107	14
PCB-#52	91	3
PCB-#101	98	2
PCB-#153	96	7
PCB-#138	97	8
PCB-#180	101	5
PCB-#81	90	16
PCB-#77	83	5
PCB-#126	78	10
PCB-#169	75	10
PCB-#123	109	5
PCB-#118	104	5
PCB-#114	98	4
PCB-#105	83	5
PCB-#167	94	8
PCB-#156	97	7
PCB-#157	99	8
PCB-#189	99	7

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