Quality Control Certificate

Product:	**Carbon Column**
Product No.:	20777
Lot No.:	**720471**

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:	0,0052	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	9,3	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	81	to	108	%	(crit:	70	to	120	%)
	PCB	75	to	88	%	(crit:	70	to	120	%)

This is to certify that the Carbon Column, Lot 720471, passed the required test specifications and is released for sale.

date: 31.07.2024 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= 8

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	<dl
	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	<0,045
	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	<dl
	1,2,3,4,6,7,8,9-OCDF	<0,054
	2,3,7,8-TCDD	<0,036
	1,2,3,7,8-PeCDD	<0,054
	1,2,3,4,7,8-HxCDD	<0,027
	1,2,3,6,7,8-HxCDD	<0,108
	1,2,3,7,8,9-HxCDD	<0,027
	1,2,3,4,6,7,8-HpCDD	0,11
	1,2,3,4,6,7,8,9-OCDD	1,58

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,06
upper bound	0,07

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	4,66
	PCB-#52	2,22
	PCB-#101	0,99
	PCB-#153	0,75
	PCB-#138	0,68
	PCB-#180	<dl
	PCB-#81	0,06
	PCB-#77	0,359
	PCB-#126	0,0442
	PCB-#169	<0,027
	PCB-#123	0,02
	PCB-#118	<0,108
	PCB-#114	0,015
	PCB-#105	<dl
	PCB-#167	0,15
	PCB-#156	0,339
	PCB-#157	0,19
	PCB-#189	0,404

PCB-TEQ	[pg/column]
lower bound	0,0052
upper bound	0,0052
Sum DIN	9,3

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	91	11
1,2,3,7,8-PeCDF	81	14
2,3,4,7,8-PeCDF	86	11
1,2,3,4,7,8-HxCDF	99	15
1,2,3,6,7,8-HxCDF	103	12
2,3,4,6,7,8-HxCDF	108	14
1,2,3,7,8,9-HxCDF	98	6
1,2,3,4,6,7,8-HpCDF	91	3
1,2,3,4,7,8,9-HpCDF	83	9
1,2,3,4,6,7,8,9-OCDF	94	7
2,3,7,8-TCDD	82	16
1,2,3,7,8-PeCDD	81	15
1,2,3,4,7,8-HxCDD	100	10
1,2,3,6,7,8-HxCDD	82	10
1,2,3,7,8,9-HxCDD	98	8
1,2,3,4,6,7,8-HpCDD	82	5
1,2,3,4,6,7,8,9-OCDD	83	8

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	81	11
PCB-#52	76	11
PCB-#101	84	12
PCB-#153	76	18
PCB-#138	86	11
PCB-#180	83	3
PCB-#81	77	9
PCB-#77	82	9
PCB-#126	77	11
PCB-#169	75	13
PCB-#123	87	9
PCB-#118	82	10
PCB-#114	88	10
PCB-#105	83	11
PCB-#167	77	7
PCB-#156	79	15
PCB-#157	81	12
PCB-#189	79	5

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