Quality Control Certificate

Product: **Carbon Column Pos.3**

Product No.: 13810

Lot No.: 719788

Storage Recommendations: Store the column at room temperature below 25°C

Description: The Carbon Column is part of a 4-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: < 0,7	pg/column)
	dl-PCB-TEQ:	0,0018	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	3,1	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	96	to	113	%	(crit:	70	to	120	%)
	PCB	90	to	120	%	(crit:	70	to	120	%)

This is to certify that the Carbon Column Pos.3, Lot 719788, passed the required test specifications and is released for sale.

date: 15.04.2024 sign.: M. Brachs

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 pos.3, 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= 12

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	0,25

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	1,31
	PCB-#52	1,04
	PCB-#101	0,53
	PCB-#153	0,24
	PCB-#138	<0,261
	PCB-#180	<0,18
	PCB-#81	0,03
	PCB-#77	<0,045
	PCB-#126	0,012
	PCB-#169	<0,027
	PCB-#123	0,04
	PCB-#118	0,2
	PCB-#114	0,066
	PCB-#105	<0,081
	PCB-#167	0,043
	PCB-#156	<0,126
	PCB-#157	0,14
	PCB-#189	0,167

PCDD/F TEQ (2005)	[pg/column]
lower bound	0
upper bound	0,05

PCB-TEQ	[pg/column]
lower bound	0,0018
upper bound	0,0018
Sum DIN	3,1

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	103	2
1,2,3,7,8-PeCDF	108	2
2,3,4,7,8-PeCDF	110	2
1,2,3,4,7,8-HxCDF	100	2
1,2,3,6,7,8-HxCDF	100	5
2,3,4,6,7,8-HxCDF	101	3
1,2,3,7,8,9-HxCDF	99	2
1,2,3,4,6,7,8-HpCDF	111	3
1,2,3,4,7,8,9-HpCDF	104	2
1,2,3,4,6,7,8,9-OCDF	101	3
2,3,7,8-TCDD	98	1
1,2,3,7,8-PeCDD	106	3
1,2,3,4,7,8-HxCDD	113	4
1,2,3,6,7,8-HxCDD	97	3
1,2,3,7,8,9-HxCDD	108	3
1,2,3,4,6,7,8-HpCDD	107	2
1,2,3,4,6,7,8,9-OCDD	96	3

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	113	5
PCB-#52	107	5
PCB-#101	116	1
PCB-#153	120	3
PCB-#138	117	1
PCB-#180	120	2
PCB-#81	100	2
PCB-#77	111	4
PCB-#126	111	9
PCB-#169	112	9
PCB-#123	105	7
PCB-#118	96	11
PCB-#114	108	3
PCB-#105	90	17
PCB-#167	99	14
PCB-#156	100	13
PCB-#157	90	19
PCB-#189	99	15

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