Quality Control Certificate

Product:	**Carbon Column Pos.3**
Product No.:	13810
Lot No.:	**722940**

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:	0,07	pg/column
	(crit: < 0,70	pg/column)
dl-PCB-TEQ:	0,0063	pg/column
	(crit: < 0,05	pg/column)
Sum Total PCB:	4,4	pg/column
	(crit: < 300	pg/column)

Results Recoveries:

PCDD/F	77	to	102	%	(crit:	70	to	120	%)
PCB	92	to	109	%	(crit:	70	to	120	%)

This is to certify that the Carbon Column Pos.3, Lot 722940, passed the required test specifications and is released for sale.

date: 16.12.2025   sign.: _____

The company LCTech GmbH is certified according to ISO 9001

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

Results:

Lockmass check: No significant disturbances, or indicators for contaminations are detected.

Blanks: n=   6

Table 1: PCDD/F blank

	[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	<dl
1,2,3,6,7,8-HxCDF	<0,018
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	<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	<0,054
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	<0,09
1,2,3,4,6,7,8,9-OCDD	0,26

sample amount [pg/column]

Table 2: PCB blank

	[pg/column]
PCB-#28	1,35
PCB-#52	1,62
PCB-#101	0,71
PCB-#153	0,32
PCB-#138	0,39
PCB-#180	<0,18
PCB-#81	0,12
PCB-#77	0,2017
PCB-#126	0,04
PCB-#169	0,073
PCB-#123	0,07
PCB-#118	0,63
PCB-#114	0,02
PCB-#105	0,14
PCB-#167	0,136
PCB-#156	<0,126
PCB-#157	0,04
PCB-#189	0,069

sample amount [pg/sample]

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,05
upper bound	0,07

PCB-TEQ	[pg/column]
lower bound	0,0063
upper bound	0,0063
Sum DIN	4,4

Table 3: PCDD/F recoveries

		[%]	RSD [%]
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	81	3
	1,2,3,7,8-PeCDF	79	2
	2,3,4,7,8-PeCDF	85	4
	1,2,3,4,7,8-HxCDF	93	7
	1,2,3,6,7,8-HxCDF	99	8
	2,3,4,6,7,8-HxCDF	99	5
	1,2,3,7,8,9-HxCDF	90	10
	1,2,3,4,6,7,8-HpCDF	97	8
	1,2,3,4,7,8,9-HpCDF	85	5
	1,2,3,4,6,7,8,9-OCDF	77	8
	2,3,7,8-TCDD	78	4
	1,2,3,7,8-PeCDD	80	4
	1,2,3,4,7,8-HxCDD	102	5
	1,2,3,6,7,8-HxCDD	88	5
	1,2,3,7,8,9-HxCDD	95	7
	1,2,3,4,6,7,8-HpCDD	93	5
	1,2,3,4,6,7,8,9-OCDD	82	8

Table 4: PCB recoveries

		[%]	RSD [%]
PCB 13C Recoveries [%]	PCB-#28	94	4
	PCB-#52	92	7
	PCB-#101	94	3
	PCB-#153	100	2
	PCB-#138	96	8
	PCB-#180	102	2
	PCB-#81	95	3
	PCB-#77	97	3
	PCB-#126	100	2
	PCB-#169	98	13
	PCB-#123	102	3
	PCB-#118	101	2
	PCB-#114	99	2
	PCB-#105	103	3
	PCB-#167	100	2
	PCB-#156	109	2
	PCB-#157	102	7
	PCB-#189	101	2