Quality Control Certificate

Product:	**Smart Column**
Product No.:	19513
Lot No.:	**718044**

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

Description: The Smart 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:	0,16	pg/column
		(crit: < 0,7	pg/column)
	dl-PCB-TEQ:	0,0066	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	5,5	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	79	to	104	%	(crit:	70	to	120	%)
	PCB	79	to	100	%	(crit:	70	to	120	%)

This is to certify that the Smart Column, Lot 718044, passed the required test specifications and is released for sale.

date: 19.06.2023 sign.: T. Kehmeier

The company LCTech GmbH is certified according to ISO 9001

LCTech GmbH
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Germany

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Hazards:	NOT FOR HUMAN OR DRUG USE! The Smart Column is designed and prepared for usage with the Alumina/Florisil Column and Carbon 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 Smart Column, Lot , passed the required test specifications and is released for sale.
Remarks	Our suppliers maintain the highest standard of quality, however due to the high temperature necessary for several steps in the production, some small charred particles may be visible within a batch of silica or filters without any effect on the clean-up.

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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	0,06
	1,2,3,7,8-PeCDF	0,05
	2,3,4,7,8-PeCDF	<dl
	1,2,3,4,7,8-HxCDF	0,03
	1,2,3,6,7,8-HxCDF	0,034
	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	0,024
	1,2,3,4,6,7,8,9-OCDF	0,11
	2,3,7,8-TCDD	<0,036
	1,2,3,7,8-PeCDD	0,09
	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	0,25

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,15
upper bound	0,16

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	1,45
	PCB-#52	1,41
	PCB-#101	0,86
	PCB-#153	0,76
	PCB-#138	0,71
	PCB-#180	0,346
	PCB-#81	0,06
	PCB-#77	0,09
	PCB-#126	0,051
	PCB-#169	0,047
	PCB-#123	0,18
	PCB-#118	0,43
	PCB-#114	0,234
	PCB-#105	0,45
	PCB-#167	0,185
	PCB-#156	0,291
	PCB-#157	0,21
	PCB-#189	0,493

PCB-TEQ	[pg/column]
lower bound	0,0066
upper bound	0,0066
Sum DIN	5,5

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	81	6
1,2,3,7,8-PeCDF	80	8
2,3,4,7,8-PeCDF	83	12
1,2,3,4,7,8-HxCDF	93	6
1,2,3,6,7,8-HxCDF	102	6
2,3,4,6,7,8-HxCDF	99	6
1,2,3,7,8,9-HxCDF	100	4
1,2,3,4,6,7,8-HpCDF	104	4
1,2,3,4,7,8,9-HpCDF	99	3
1,2,3,4,6,7,8,9-OCDF	99	4
2,3,7,8-TCDD	79	4
1,2,3,7,8-PeCDD	79	10
1,2,3,4,7,8-HxCDD	103	4
1,2,3,6,7,8-HxCDD	86	4
1,2,3,7,8,9-HxCDD	100	4
1,2,3,4,6,7,8-HpCDD	95	4
1,2,3,4,6,7,8,9-OCDD	91	4

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	92	5
PCB-#52	100	2
PCB-#101	96	2
PCB-#153	93	2
PCB-#138	94	2
PCB-#180	91	3
PCB-#81	87	9
PCB-#77	94	15
PCB-#126	82	14
PCB-#169	80	13
PCB-#123	81	7
PCB-#118	79	8
PCB-#114	82	4
PCB-#105	86	17
PCB-#167	82	13
PCB-#156	83	8
PCB-#157	84	13
PCB-#189	82	8

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