Quality Control Certificate

Product:	**Smart Column**
Product No.:	19513
Lot No.:	**719783**

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:	0,22	pg/column
	(crit: < 0,7	pg/column)
dl-PCB-TEQ:	0,0136	pg/column
	(crit: < 0,05	pg/column)
Sum Total PCB:	4,3	pg/column
	(crit: < 300	pg/column)

Results Recoveries:

PCDD/F	75	to	89	%	(crit:	70	to	120	%)
PCB	81	to	93	%	(crit:	70	to	120	%)

This is to certify that the Smart Column, Lot 719783, passed the required test specifications and is released for sale.

date: 21.03.2024   sign.:   _M.Bredis_

The company LCTech GmbH is certified according to ISO 9001

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.

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	0,05
1,2,3,7,8-PeCDF	0,09
2,3,4,7,8-PeCDF	0,13
1,2,3,4,7,8-HxCDF	0,072
1,2,3,6,7,8-HxCDF	0,039
2,3,4,6,7,8-HxCDF	0,06
1,2,3,7,8,9-HxCDF	0,06
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	0,068
1,2,3,4,6,7,8,9-OCDF	0,06
2,3,7,8-TCDD	0,06
1,2,3,7,8-PeCDD	0,07
1,2,3,4,7,8-HxCDD	0,036
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	0,12
1,2,3,4,6,7,8,9-OCDD	0,34

sample amount [pg/column]

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,22
upper bound	0,22

Table 2: PCB blank

	[pg/column]
PCB-#28	0,78
PCB-#52	0,71
PCB-#101	0,8
PCB-#153	0,75
PCB-#138	0,48
PCB-#180	0,752
PCB-#81	0,06
PCB-#77	0,095
PCB-#126	0,1012
PCB-#169	0,106
PCB-#123	0,8
PCB-#118	1,24
PCB-#114	0,594
PCB-#105	1,01
PCB-#167	0,978
PCB-#156	1,235
PCB-#157	0,87
PCB-#189	1,081

sample amount [pg/sample]

PCB-TEQ	[pg/column]
lower bound	0,0136
upper bound	0,0136
Sum DIN	4,3

Table 3: PCDD/F recoveries

	[%]	RSD [%]
2,3,7,8-TCDF	83	6
1,2,3,7,8-PeCDF	81	7
2,3,4,7,8-PeCDF	80	8
1,2,3,4,7,8-HxCDF	80	3
1,2,3,6,7,8-HxCDF	88	4
2,3,4,6,7,8-HxCDF	86	4
1,2,3,7,8,9-HxCDF	85	5
1,2,3,4,6,7,8-HpCDF	89	5
1,2,3,4,7,8,9-HpCDF	89	10
1,2,3,4,6,7,8,9-OCDF	86	6
2,3,7,8-TCDD	79	7
1,2,3,7,8-PeCDD	81	7
1,2,3,4,7,8-HxCDD	88	5
1,2,3,6,7,8-HxCDD	75	4
1,2,3,7,8,9-HxCDD	86	5
1,2,3,4,6,7,8-HpCDD	84	6
1,2,3,4,6,7,8,9-OCDD	82	6

PCDD/F 13C Recoveries [%]

Table 4: PCB recoveries

	[%]	RSD [%]
PCB-#28	93	6
PCB-#52	88	9
PCB-#101	88	3
PCB-#153	92	3
PCB-#138	92	4
PCB-#180	91	3
PCB-#81	81	5
PCB-#77	85	6
PCB-#126	81	8
PCB-#169	81	11
PCB-#123	87	7
PCB-#118	84	6
PCB-#114	86	6
PCB-#105	84	6
PCB-#167	82	5
PCB-#156	88	10
PCB-#157	86	11
PCB-#189	86	7

PCB 13C Recoveries [%]