

Quality Control Certificate

Product: **Smart Column**
 Product No.: 19513
 Lot No.: **717747**

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:	0,0045	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	66,1	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	78	to	107	%	(crit: 45	to	130	%)
	PCB	81	to	122	%	(crit: 45	to	130	%)

This is to certify that the Smart Column, Lot 717747, passed the required test specifications and is released for sale.

date: 16.02.2023 sign.: T. Keshmeir

The company LCTech GmbH is certified according to ISO 9001



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Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>The 209 Column is designed and prepared for usage with the Alumina 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.</p>
Quality Control:	<p>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.</p>
Quality Management:	<p>This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)</p>
Documentation / Data Attached:	<p>table 1 & 2: blankvalues of PCDD/F and PCB table 3 & 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>All the Columns (n>5) have to perform a clean-up of a solvent blank (10 mL n-hexane), spiked with a 13C - labelled quantifier-standard solution with a default alumina plus or pure 209 method onto a DEXTech Pure or Plus system. There are 2 fractions, fraction 1 (all 209 PCB) and fraction 2 (PCDD/F). Both fractions are spiked with the corresponding 13C - labelled recovery- standard solutions and evaporated with the D-EVA vacuum centrifuge. The extracts are measured with a HRMS-DFS from Thermo Fisher Scientific with a resolution of R > 10000. The HRGCs are equipped with 60 m DB5 MS Columns. For PCDD/F 5µL are injected via PTV, for PCB</p>
Remarks	<p>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.</p>

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Results:

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

Blanks: n= 10

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	0,14
1,2,3,7,8-PeCDF	<0,045
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	<0,027
1,2,3,6,7,8-HxCDF	0,019
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	<0,018
1,2,3,4,6,7,8,9-OCDF	1,72
2,3,7,8-TCDD	0,05
1,2,3,7,8-PeCDD	0,06
1,2,3,4,7,8-HxCDD	<dl
1,2,3,6,7,8-HxCDD	<dl
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	0,22

Table 2: PCB blank

	[pg/column]
PCB-#28	4,57
PCB-#52	6,95
PCB-#101	10,92
PCB-#153	26,15
PCB-#138	12,53
PCB-#180	4,991
PCB-#81	0,05
PCB-#77	<0,18
PCB-#126	0,0369
PCB-#169	<dl
PCB-#123	0,83
PCB-#118	5,73
PCB-#114	0,692
PCB-#105	1,54
PCB-#167	0,743
PCB-#156	1,051
PCB-#157	0,42
PCB-#189	1,101

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

PCB-TEQ	[pg/column]
lower bound	0,0045
upper bound	0,0044
Sum DIN	66,1

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Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	87	11
	1,2,3,7,8-PeCDF	86	6
	2,3,4,7,8-PeCDF	80	17
	1,2,3,4,7,8-HxCDF	80	12
	1,2,3,6,7,8-HxCDF	87	13
	2,3,4,6,7,8-HxCDF	87	10
	1,2,3,7,8,9-HxCDF	92	11
	1,2,3,4,6,7,8-HpCDF	105	5
	1,2,3,4,7,8,9-HpCDF	107	4
	1,2,3,4,6,7,8,9-OCDF	102	7
	2,3,7,8-TCDD	81	8
	1,2,3,7,8-PeCDD	83	9
	1,2,3,4,7,8-HxCDD	89	16
	1,2,3,6,7,8-HxCDD	78	8
	1,2,3,7,8,9-HxCDD	88	11
	1,2,3,4,6,7,8-HpCDD	103	5
	1,2,3,4,6,7,8,9-OCDD	92	5

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	101	3
	PCB-#52	99	12
	PCB-#101	103	6
	PCB-#153	99	7
	PCB-#138	100	6
	PCB-#180	105	11
	PCB-#81	102	7
	PCB-#77	111	9
	PCB-#126	122	17
	PCB-#169	111	32
	PCB-#123	96	7
	PCB-#118	92	8
	PCB-#114	92	5
	PCB-#105	92	10
	PCB-#167	94	5
	PCB-#156	86	10
	PCB-#157	90	9
	PCB-#189	81	12