Quality Control Certificate

Product: **Smart Column**

Product No.:   **14307**

Lot No.:   **3000221**

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 via DEva 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:	0,27	pg/column	
	(crit: <	0,7	pg/column)
dl-PCB-TEQ:	0,006	pg/column	
	(crit: <	0,05	pg/column)
Sum Indikator PCB:	13,3	pg/column	
	(crit: <	100	pg/column)

Results Recoveries:

PCDD/F	73	to	114	%	(crit: 70	to	120)
PCB	76	to	109	%	(crit: 70	to	120)

This is to certify that smart column, Lot 3000221, passed the required test specifications and is released for sale.

date: 08.04.2021   sign.: _T. Kehemeir_

The company LCTech GmbH is certified according to ISO 9001:2015

DEKRA Certification

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:	Blank values of PCDD/F and PCB
Table 3 & 4:	13C-Recoveries of PCDD/F and PCB

Analytics: 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 single column method onto a DEXTech Plus system. The fractions 1 (PCB) and 2 (PCDD/F) are spiked with 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 2µL via SSL.

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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DEKRA
Certification

Results:

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,05
1,2,3,7,8-PeCDF	0,08
2,3,4,7,8-PeCDF	0,2
1,2,3,4,7,8-HxCDF	0,138
1,2,3,6,7,8-HxCDF	0,147
2,3,4,6,7,8-HxCDF	0,05
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	0,034
OCDF	<0,054
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,15
1,2,3,4,7,8-HxCDD	0,041
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
OCDD	<0,108

TEQ (WHO 2005)	
lower bound	0,27
upper bound	0,28

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
PCB 28	1,15
PCB 52	3,47
PCB 77	0,15
PCB 81	<dl
PCB 101	2,59
PCB 123	0,0202
PCB 118	1,03
PCB 114	0,0638
PCB 105	0,47
PCB 126	0,0562
PCB 153	3,18
PCB 138	2,1
PCB 167	0,061
PCB 156	<0,126
PCB 157	0,029
PCB 169	<dl
PCB 180	0,75
PCB 189	0,118

TEQ (WHO 2005)	
lower bound	0,0057
upper bound	0,006

Sum DIN PCB	13,3

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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=6)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	73
1,2,3,7,8-PeCDF	105
2,3,4,7,8-PeCDF	73
1,2,3,4,7,8-HxCDF	111
1,2,3,6,7,8-HxCDF	112
2,3,4,6,7,8-HxCDF	79
1,2,3,7,8,9-HxCDF	114
1,2,3,4,6,7,8-HpCDF	96
1,2,3,4,7,8,9-HpCDF	114
OCDF	96
2,3,7,8-TCDD	81
1,2,3,7,8-PeCDD	92
1,2,3,4,7,8-HxCDD	104
1,2,3,6,7,8-HxCDD	99
1,2,3,7,8,9-HxCDD	97
1,2,3,4,6,7,8-HpCDD	104
OCDD	94

Table 4: PCB 13C-recoveries (n=6)

Congeneres:	13C rec [%]
PCB 28	100
PCB 52	98
PCB 77	76
PCB 81	84
PCB 101	92
PCB 123	96
PCB 118	91
PCB 114	97
PCB 105	99
PCB 126	86
PCB 153	102
PCB 138	109
PCB 167	95
PCB 156	103
PCB 157	100
PCB 169	106
PCB 180	97
PCB 189	87

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