Quality Control Certificate

Product: **Smart Column**

Product No.:   **14307**

Lot No.:   **3000180**

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-up on a DEXTech Plus system, spiked with recovery standard, evaporated via DEva and has been quantified with a HRGC/HRMS with a resolution of R > 10000.

Results Blank Value:

PCDD/F-TEQ:	0,13	pg/column	
	(crit: <	0,7	pg/column
dl-PCB-TEQ:	0,012	pg/column	
	(crit: <	0,05	pg/column
Sum Indikator PCB:	27,49	pg/column	
	(crit: <	100	pg/column

Results Recoveries:

PCDD/F	90	to	103	%	(crit: 70	to	120	)
PCB	80	to	102	%	(crit: 70	to	120	)

This is to certify that smart column, Lot 3000180, passed the required test specifications and is released for sale.

date: 06.11.2020   sign.: *T. Kehemeir*

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

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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: 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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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	0,04
1,2,3,7,8-PeCDF	<0,045
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,033
1,2,3,6,7,8-HxCDF	<0,018
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	0,035
OCDF	0,68
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,06
1,2,3,4,7,8-HxCDD	0,126
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
OCDD	0,49

TEQ (WHO 2005)	
lower bound	0,13
upper bound	0,13

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
PCB 28	3,72
PCB 52	10,9
PCB 77	0,18
PCB 81	<0,027
PCB 101	4,66
PCB 123	0,0599
PCB 118	1,21
PCB 114	0,0843
PCB 105	0,49
PCB 126	0,1018
PCB 153	3,2
PCB 138	3,74
PCB 167	0,53
PCB 156	0,3
PCB 157	0,137
PCB 169	0,046
PCB 180	0,74
PCB 189	0,119

TEQ (WHO 2005)	
lower bound	0,0117
upper bound	0,0117

Sum DIN PCB	27,49

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Results:

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	103
1,2,3,7,8-PeCDF	99
2,3,4,7,8-PeCDF	96
1,2,3,4,7,8-HxCDF	97
1,2,3,6,7,8-HxCDF	93
2,3,4,6,7,8-HxCDF	91
1,2,3,7,8,9-HxCDF	91
1,2,3,4,6,7,8-HpCDF	103
1,2,3,4,7,8,9-HpCDF	98
OCDF	93
2,3,7,8-TCDD	103
1,2,3,7,8-PeCDD	95
1,2,3,4,7,8-HxCDD	96
1,2,3,6,7,8-HxCDD	90
1,2,3,7,8,9-HxCDD	91
1,2,3,4,6,7,8-HpCDD	100
OCDD	93

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

Congeneres:	13C rec [%]
PCB 28	85
PCB 52	84
PCB 77	102
PCB 81	94
PCB 101	88
PCB 123	85
PCB 118	85
PCB 114	80
PCB 105	87
PCB 126	90
PCB 153	88
PCB 138	96
PCB 167	86
PCB 156	91
PCB 157	93
PCB 169	87
PCB 180	91
PCB 189	88

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