

Quality Control Certificate

Product: Smart Column

Product No.: 14307

Lot No.: 3000200

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:	0,002	pg/column
	(crit: <	0,05 pg/column
Sum Indikator PCB:	16,82	pg/column
	(crit: <	100 pg/column

Results Recoveries:

PCDD/F	77	to	100	%	(crit: 70 to 120)
PCB	74	to	102	%	(crit: 70 to 120)

This is to certify that smart column, Lot 3000200, passed the required test specifications and is released for sale.

date: 16.12.2020 sign.: _____

T. Kehmeier

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



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

Analytcs: 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)

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,07
1,2,3,7,8-PeCDF	0,08
2,3,4,7,8-PeCDF	0,1
1,2,3,4,7,8-HxCDF	<dl
1,2,3,6,7,8-HxCDF	0,034
2,3,4,6,7,8-HxCDF	<dl
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	0,032
OCDF	2,7
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,08
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	<dl
OCDD	0,27

Congeneres:	[pg/column]:
PCB 28	1,2
PCB 52	6,77
PCB 77	0,18
PCB 81	0,029
PCB 101	2,11
PCB 123	0,1823
PCB 118	1,07
PCB 114	0,0795
PCB 105	0,41
PCB 126	0,0199
PCB 153	2,82
PCB 138	3,01
PCB 167	0,326
PCB 156	0,32
PCB 157	0,124
PCB 169	<dl
PCB 180	0,58
PCB 189	0,24

TEQ (WHO 2005)	
lower bound	0,13
upper bound	0,15

TEQ (WHO 2005)	
lower bound	0,0021
upper bound	0,0024

Sum DIN PCB	16,82
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Results:

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	96
1,2,3,7,8-PeCDF	89
2,3,4,7,8-PeCDF	91
1,2,3,4,7,8-HxCDF	84
1,2,3,6,7,8-HxCDF	90
2,3,4,6,7,8-HxCDF	77
1,2,3,7,8,9-HxCDF	81
1,2,3,4,6,7,8-HpCDF	99
1,2,3,4,7,8,9-HpCDF	95
OCDF	95
2,3,7,8-TCDD	95
1,2,3,7,8-PeCDD	92
1,2,3,4,7,8-HxCDD	77
1,2,3,6,7,8-HxCDD	83
1,2,3,7,8,9-HxCDD	78
1,2,3,4,6,7,8-HpCDD	100
OCDD	90

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

Congeneres:	13C rec [%]
PCB 28	89
PCB 52	74
PCB 77	101
PCB 81	98
PCB 101	88
PCB 123	84
PCB 118	90
PCB 114	84
PCB 105	83
PCB 126	93
PCB 153	97
PCB 138	102
PCB 167	85
PCB 156	95
PCB 157	92
PCB 169	99
PCB 180	88
PCB 189	84

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