

Quality Control Certificate

Product: Smart Column

Product No.: 14307

Lot No.: 3000241

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:	0,54	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,003	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	14,63	pg/column
	(crit: <	100 pg/column)

Results Recoveries:

PCDD/F	82	to	114	%	(crit: 70	to	120)
PCB	91	to	118	%	(crit: 70	to	120)

This is to certify that smart column, Lot 3000241, passed the required test specifications and is released for sale.

date: 25.05.2021

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=5)

Table 2: PCB blank (n=5)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,06
1,2,3,7,8-PeCDF	0,32
2,3,4,7,8-PeCDF	0,23
1,2,3,4,7,8-HxCDF	0,12
1,2,3,6,7,8-HxCDF	0,135
2,3,4,6,7,8-HxCDF	0,12
1,2,3,7,8,9-HxCDF	0,25
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	0,169
OCDF	0,31
2,3,7,8-TCDD	0,04
1,2,3,7,8-PeCDD	0,3
1,2,3,4,7,8-HxCDD	0,092
1,2,3,6,7,8-HxCDD	0,23
1,2,3,7,8,9-HxCDD	0,13
1,2,3,4,6,7,8-HpCDD	0,14
OCDD	<0,108

Congeneres:	[pg/column]:
PCB 28	2,24
PCB 52	5,65
PCB 77	0,07
PCB 81	<dl
PCB 101	3,13
PCB 123	0,0274
PCB 118	0,81
PCB 114	0,0263
PCB 105	0,21
PCB 126	0,0334
PCB 153	2
PCB 138	1,14
PCB 167	<0,027
PCB 156	<0,126
PCB 157	0,033
PCB 169	<dl
PCB 180	0,45
PCB 189	0,069

TEQ (WHO 2005)	
lower bound	0,54
upper bound	0,54

TEQ (WHO 2005)	
lower bound	0,0034
upper bound	0,0037

Sum DIN PCB	14,63
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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=5)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	99
1,2,3,7,8-PeCDF	100
2,3,4,7,8-PeCDF	102
1,2,3,4,7,8-HxCDF	101
1,2,3,6,7,8-HxCDF	112
2,3,4,6,7,8-HxCDF	98
1,2,3,7,8,9-HxCDF	108
1,2,3,4,6,7,8-HpCDF	114
1,2,3,4,7,8,9-HpCDF	110
OCDF	109
2,3,7,8-TCDD	91
1,2,3,7,8-PeCDD	98
1,2,3,4,7,8-HxCDD	95
1,2,3,6,7,8-HxCDD	82
1,2,3,7,8,9-HxCDD	101
1,2,3,4,6,7,8-HpCDD	101
OCDD	96

Table 4: PCB 13C-recoveries (n=5)

Congeneres:	13C rec [%]
PCB 28	95
PCB 52	104
PCB 77	116
PCB 81	117
PCB 101	97
PCB 123	98
PCB 118	94
PCB 114	96
PCB 105	95
PCB 126	118
PCB 153	99
PCB 138	107
PCB 167	99
PCB 156	97
PCB 157	98
PCB 169	117
PCB 180	106
PCB 189	91

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