

Quality Control Certificate

Product: Standard Column

Product No.: 13375

Lot No.: 1000181

Storage Recommendations: Store the column at room temperature below 25°C

Description: The standard column is part of a 3- or 4-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:	0,14	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,006	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	10,85	pg/column
	(crit: <	100 pg/column)

Results Recoveries:

PCDD/F	80	to	107	%	(crit: 70 to 120)
PCB	75	to	118	%	(crit: 70 to 120)

This is to certify that standard column, Lot 1000181, passed the required test specifications and is released for sale.

date: 09.04.2021 sign.: _____

T. Kehmeier

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



Hazards: NOT FOR HUMAN OR DRUG USE!

The standard 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)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,04
1,2,3,7,8-PeCDF	0,06
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,074
1,2,3,6,7,8-HxCDF	0,073
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	<dl
1,2,3,4,7,8,9-HpCDF	0,029
OCDF	0,08
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,09
1,2,3,4,7,8-HxCDD	0,031
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
OCDD	0,16

TEQ (WHO 2005)	
lower bound	0,14
upper bound	0,16

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
PCB 28	1,27
PCB 52	4,02
PCB 77	0,07
PCB 81	<dl
PCB 101	2,16
PCB 123	0,0036
PCB 118	0,83
PCB 114	0,176
PCB 105	0,13
PCB 126	0,0545
PCB 153	1,29
PCB 138	1,39
PCB 167	0,111
PCB 156	0,25
PCB 157	0,227
PCB 169	<0,027
PCB 180	0,61
PCB 189	0,18

TEQ (WHO 2005)	
lower bound	0,0063
upper bound	0,0063

Sum DIN PCB	10,85
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Results:

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	91
1,2,3,7,8-PeCDF	106
2,3,4,7,8-PeCDF	94
1,2,3,4,7,8-HxCDF	104
1,2,3,6,7,8-HxCDF	105
2,3,4,6,7,8-HxCDF	80
1,2,3,7,8,9-HxCDF	94
1,2,3,4,6,7,8-HpCDF	97
1,2,3,4,7,8,9-HpCDF	103
OCDF	99
2,3,7,8-TCDD	107
1,2,3,7,8-PeCDD	107
1,2,3,4,7,8-HxCDD	107
1,2,3,6,7,8-HxCDD	102
1,2,3,7,8,9-HxCDD	99
1,2,3,4,6,7,8-HpCDD	107
OCDD	95

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

Congeneres:	13C rec [%]
PCB 28	110
PCB 52	105
PCB 77	105
PCB 81	100
PCB 101	100
PCB 123	97
PCB 118	92
PCB 114	105
PCB 105	87
PCB 126	111
PCB 153	99
PCB 138	95
PCB 167	86
PCB 156	88
PCB 157	84
PCB 169	118
PCB 180	99
PCB 189	75

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