

Quality Control Certificate

Product: Universal Column

Product No.: 19511

Lot No.: 717167

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

Description: The Universal Column is part of a 3- or 4-column setup for the sample cleanup of environmental-, food- / feed- and similar matrices. It is designed for the analysis of polychlorinated dibenzo-p-dioxins (PCDD), polychlorinated dibenzofurans (PCDF) and polychlorinated biphenyl (PCB) congeners with the DEXTech systems from LCTech GmbH

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 D-EVA 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:	0,02	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	4,4	pg/column
	(crit: <	100 pg/column)

Results Recoveries:

PCDD/F	76	to	106	%	(crit: 70 to 120)
PCB	74	to	106	%	(crit: 70 to 120)

This is to certify that the 19511, Lot 717167, passed the required test specifications and is released for sale.

date: 30.08.2022 sign.: _____

T. Kehmeier

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



Hazards: NOT FOR HUMAN OR DRUG USE!

The Universal Column is designed and prepared for usage with the Alumina/Florisil 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=9)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,1
1,2,3,7,8-PeCDF	0,23
2,3,4,7,8-PeCDF	0,2
1,2,3,4,7,8-HxCDF	0,052
1,2,3,6,7,8-HxCDF	0,049
2,3,4,6,7,8-HxCDF	0,07
1,2,3,7,8,9-HxCDF	0,1
1,2,3,4,6,7,8-HpCDF	0,11
1,2,3,4,7,8,9-HpCDF	0,21
OCDF	0,09
2,3,7,8-TCDD	0,14
1,2,3,7,8-PeCDD	0,21
1,2,3,4,7,8-HxCDD	0,373
1,2,3,6,7,8-HxCDD	0,27
1,2,3,7,8,9-HxCDD	0,152
1,2,3,4,6,7,8-HpCDD	0,19
OCDD	0,32

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

Table 2: PCB blank (n=9)

Congeneres:	[pg/column]:
PCB 28	1,07
PCB 52	1,02
PCB 77	0,15
PCB 81	0,071
PCB 101	0,74
PCB 123	0,2728
PCB 118	0,31
PCB 114	0,1863
PCB 105	0,63
PCB 126	0,1764
PCB 153	0,48
PCB 138	0,44
PCB 167	0,288
PCB 156	0,28
PCB 157	0,271
PCB 169	0,079
PCB 180	0,39
PCB 189	0,522

TEQ (WHO 2005)	
lower bound	0,0201
upper bound	0,0201

Sum DIN PCB	4,4
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Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=9)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	93
1,2,3,7,8-PeCDF	89
2,3,4,7,8-PeCDF	94
1,2,3,4,7,8-HxCDF	87
1,2,3,6,7,8-HxCDF	93
2,3,4,6,7,8-HxCDF	88
1,2,3,7,8,9-HxCDF	84
1,2,3,4,6,7,8-HpCDF	100
1,2,3,4,7,8,9-HpCDF	106
OCDF	98
2,3,7,8-TCDD	84
1,2,3,7,8-PeCDD	93
1,2,3,4,7,8-HxCDD	103
1,2,3,6,7,8-HxCDD	76
1,2,3,7,8,9-HxCDD	90
1,2,3,4,6,7,8-HpCDD	96
OCDD	93

Table 4: PCB 13C-recoveries (n=9)

Congeneres:	13C rec [%]
PCB 28	89
PCB 52	95
PCB 77	94
PCB 81	91
PCB 101	102
PCB 123	85
PCB 118	79
PCB 114	95
PCB 105	82
PCB 126	95
PCB 153	99
PCB 138	101
PCB 167	74
PCB 156	84
PCB 157	77
PCB 169	99
PCB 180	106
PCB 189	99

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