

Quality Control Certificate

Product: Standard Column

Product No.: 13375

Lot No.: 1000211

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:	0,02	pg/column
	(crit: < 0,7	pg/column)
dl-PCB-TEQ:	0,002	pg/column
	(crit: < 0,05	pg/column)
Sum Indikator PCB:	8,9	pg/column
	(crit: < 100	pg/column)

Results Recoveries:

PCDD/F	74	to	108	%	(crit: 70 to 120)
PCB	77	to	106	%	(crit: 70 to 120)

This is to certify that standard column, Lot 1000211, passed the required test specifications and is released for sale.

date: 21.07.2021 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)

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	<0,045
2,3,4,7,8-PeCDF	<dl
1,2,3,4,7,8-HxCDF	<dl
1,2,3,6,7,8-HxCDF	<dl
2,3,4,6,7,8-HxCDF	<dl
1,2,3,7,8,9-HxCDF	<dl
1,2,3,4,6,7,8-HpCDF	<dl
1,2,3,4,7,8,9-HpCDF	<dl
OCDF	<0,054
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	<0,054
1,2,3,4,7,8-HxCDD	<dl
1,2,3,6,7,8-HxCDD	<dl
1,2,3,7,8,9-HxCDD	<dl
1,2,3,4,6,7,8-HpCDD	<0,09
OCDD	<0,108

Congeneres:	[pg/column]:
PCB 28	1,21
PCB 52	2,12
PCB 77	<0,045
PCB 81	<dl
PCB 101	2,03
PCB 123	0,0733
PCB 118	0,45
PCB 114	0,0532
PCB 105	0,28
PCB 126	0,0216
PCB 153	1,6
PCB 138	1,39
PCB 167	0,156
PCB 156	0,16
PCB 157	0,062
PCB 169	<dl
PCB 180	0,38
PCB 189	0,561

TEQ (WHO 2005)	
lower bound	0,02
upper bound	0,05

TEQ (WHO 2005)	
lower bound	0,0022
upper bound	0,0025

Sum DIN PCB	8,9
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Results:

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	84
1,2,3,7,8-PeCDF	82
2,3,4,7,8-PeCDF	86
1,2,3,4,7,8-HxCDF	94
1,2,3,6,7,8-HxCDF	95
2,3,4,6,7,8-HxCDF	79
1,2,3,7,8,9-HxCDF	85
1,2,3,4,6,7,8-HpCDF	108
1,2,3,4,7,8,9-HpCDF	103
OCDF	91
2,3,7,8-TCDD	78
1,2,3,7,8-PeCDD	91
1,2,3,4,7,8-HxCDD	89
1,2,3,6,7,8-HxCDD	74
1,2,3,7,8,9-HxCDD	83
1,2,3,4,6,7,8-HpCDD	98
OCDD	81

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

Congeneres:	13C rec [%]
PCB 28	90
PCB 52	100
PCB 77	106
PCB 81	88
PCB 101	99
PCB 123	84
PCB 118	77
PCB 114	88
PCB 105	84
PCB 126	96
PCB 153	95
PCB 138	99
PCB 167	86
PCB 156	84
PCB 157	84
PCB 169	98
PCB 180	103
PCB 189	83

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