

# Quality Control Certificate

**Product:** Standard Column**Product No.:** 13375**Lot No.:** 1000191**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:	0,11	pg/column
	(crit: <	0,7 pg/column)
dl-PCB-TEQ:	0,006	pg/column
	(crit: <	0,05 pg/column)
Sum Indikator PCB:	18,55	pg/column
	(crit: <	100 pg/column)

**Results Recoveries:**

PCDD/F	77	to	111	%	(crit: 70 to 120 )
PCB	78	to	119	%	(crit: 70 to 120 )

This is to certify that standard column, Lot 1000191, passed the required test specifications and is released for sale.

date: 04.05.2021 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	0,07
1,2,3,7,8-PeCDF	0,05
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,087
1,2,3,6,7,8-HxCDF	0,047
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	<dl
1,2,3,4,7,8,9-HpCDF	0,018
OCDF	<dl
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,06
1,2,3,4,7,8-HxCDD	<0,027
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	<0,108

Congeneres:	[pg/column]:
PCB 28	1,79
PCB 52	5,79
PCB 77	0,2
PCB 81	<0,027
PCB 101	3,95
PCB 123	0,0099
PCB 118	1,33
PCB 114	0,0119
PCB 105	0,2
PCB 126	0,0603
PCB 153	3,71
PCB 138	2,12
PCB 167	<0,027
PCB 156	0,18
PCB 157	0,064
PCB 169	<dl
PCB 180	1,17
PCB 189	0,043

TEQ (WHO 2005)	
lower bound	0,11
upper bound	0,12

TEQ (WHO 2005)	
lower bound	0,0061
upper bound	0,0064

Sum DIN PCB	18,55
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**Results:**

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	80
1,2,3,7,8-PeCDF	87
2,3,4,7,8-PeCDF	81
1,2,3,4,7,8-HxCDF	111
1,2,3,6,7,8-HxCDF	103
2,3,4,6,7,8-HxCDF	83
1,2,3,7,8,9-HxCDF	93
1,2,3,4,6,7,8-HpCDF	77
1,2,3,4,7,8,9-HpCDF	83
OCDF	77
2,3,7,8-TCDD	80
1,2,3,7,8-PeCDD	85
1,2,3,4,7,8-HxCDD	85
1,2,3,6,7,8-HxCDD	83
1,2,3,7,8,9-HxCDD	87
1,2,3,4,6,7,8-HpCDD	77
OCDD	77

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

Congeneres:	13C rec [%]
PCB 28	89
PCB 52	83
PCB 77	119
PCB 81	117
PCB 101	91
PCB 123	81
PCB 118	81
PCB 114	91
PCB 105	82
PCB 126	106
PCB 153	93
PCB 138	101
PCB 167	80
PCB 156	83
PCB 157	79
PCB 169	108
PCB 180	106
PCB 189	78

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