

# Quality Control Certificate

**Product:** Standard Column

**Product No.:** 13375

**Lot No.:** 1000150

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

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**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-up on a DEXTech Plus system, spiked with recovery standard, evaporated via DEva and has been quantified with a HRGC/HRMS with a resolution of R > 10000.

**Results Blank Value:**

PCDD/F-TEQ:	0,22	pg/column
	(crit: <	0,7 pg/column
dl-PCB-TEQ:	0,006	pg/column
	(crit: <	0,05 pg/column
Sum Indikator PCB:	21,73	pg/column
	(crit: <	100 pg/column

**Results Recoveries:**

PCDD/F	81	to	115	%	(crit: 70 to 120 )
PCB	83	to	113	%	(crit: 70 to 120 )

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This is to certify that standard column, Lot 1000150, passed the required test specifications and is released for sale.

date: 19.10.2020 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	0,05
1,2,3,7,8-PeCDF	<0,045
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,051
1,2,3,6,7,8-HxCDF	0,041
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	0,039
OCDF	0,09
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	0,15
1,2,3,4,7,8-HxCDD	0,038
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	0,22
upper bound	0,22

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
PCB 28	4,52
PCB 52	5,93
PCB 77	0,07
PCB 81	0,042
PCB 101	5,64
PCB 123	0,3989
PCB 118	0,68
PCB 114	0,1014
PCB 105	0,39
PCB 126	0,0417
PCB 153	2,85
PCB 138	1,56
PCB 167	0,355
PCB 156	0,43
PCB 157	0,131
PCB 169	0,043
PCB 180	0,87
PCB 189	0,117

TEQ (WHO 2005)	
lower bound	0,0056
upper bound	0,0056

Sum DIN PCB	21,73
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**Results:**

13C-Recoveries

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

Congeneres:	13C rec [%]
2,3,7,8-TCDF	102
1,2,3,7,8-PeCDF	101
2,3,4,7,8-PeCDF	93
1,2,3,4,7,8-HxCDF	101
1,2,3,6,7,8-HxCDF	94
2,3,4,6,7,8-HxCDF	81
1,2,3,7,8,9-HxCDF	113
1,2,3,4,6,7,8-HpCDF	102
1,2,3,4,7,8,9-HpCDF	115
OCDF	101
2,3,7,8-TCDD	99
1,2,3,7,8-PeCDD	85
1,2,3,4,7,8-HxCDD	96
1,2,3,6,7,8-HxCDD	97
1,2,3,7,8,9-HxCDD	101
1,2,3,4,6,7,8-HpCDD	92
OCDD	95

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

Congeneres:	13C rec [%]
PCB 28	83
PCB 52	85
PCB 77	113
PCB 81	97
PCB 101	93
PCB 123	85
PCB 118	86
PCB 114	90
PCB 105	87
PCB 126	94
PCB 153	91
PCB 138	94
PCB 167	89
PCB 156	87
PCB 157	87
PCB 169	98
PCB 180	94
PCB 189	87

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