

## Quality Control Certificate

Product: **Universal Column**  
Product No.: 19511  
Lot No.: **722008**

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

Description: The Universal 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 with the 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:	0,08	pg/column
	(crit: <	0,70 pg/column)
dl-PCB-TEQ:	0,0107	pg/column
	(crit: <	0,05 pg/column)
Sum Total PCB:	6	pg/column
	(crit: <	300 pg/column)

Results Recoveries:

PCDD/F	90	to	115	%	(crit: 70	to	120	%)
PCB	79	to	107	%	(crit: 70	to	120	%)

This is to certify that the Universal Column, Lot 722008, passed the required test specifications and is released for sale.

date: 05.06.2025 sign.: 

The company LCTech GmbH is certified according to ISO 9001



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Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>The Universal 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.</p>
Quality Control:	<p>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.</p>
Quality Management:	<p>This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)</p>
Documentation / Data Attached:	<p>table 1 &amp; 2: blankvalues of PCDD/F and PCB table 3 &amp; 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>This is to certify that the Universal Column, Lot , passed the required test specifications and is released for sale.</p>
Remarks	<p>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.</p>

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### Results:

Lockmass check: No significant disturbances, or indicators for contaminations are detected.

Blanks: n= 5

**Table 1: PCDD/F blank**

	[pg/column]
2,3,7,8-TCDF	0,04
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	<0,045
1,2,3,7,8,9-HxCDF	<dl
1,2,3,4,6,7,8-HpCDF	<0,063
1,2,3,4,7,8,9-HpCDF	0,029
1,2,3,4,6,7,8,9-OCDF	<0,054
2,3,7,8-TCDD	<0,036
1,2,3,7,8-PeCDD	<dl
1,2,3,4,7,8-HxCDD	0,074
1,2,3,6,7,8-HxCDD	0,11
1,2,3,7,8,9-HxCDD	0,05
1,2,3,4,6,7,8-HpCDD	0,09
1,2,3,4,6,7,8,9-OCDD	0,71

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,05
upper bound	0,08

**Table 2: PCB blank**

	[pg/column]
PCB-#28	1,12
PCB-#52	0,92
PCB-#101	1,38
PCB-#153	1,25
PCB-#138	0,92
PCB-#180	0,362
PCB-#81	0,03
PCB-#77	0,12
PCB-#126	0,101
PCB-#169	<0,027
PCB-#123	0,03
PCB-#118	0,18
PCB-#114	0,024
PCB-#105	<0,081
PCB-#167	0,473
PCB-#156	0,67
PCB-#157	0,33
PCB-#189	0,326

PCB-TEQ	[pg/column]
lower bound	0,0107
upper bound	0,0107
Sum DIN	6

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**Table 3: PCDD/F recoveries**

		[%]	RSD [%]
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	90	4
	1,2,3,7,8-PeCDF	97	6
	2,3,4,7,8-PeCDF	94	3
	1,2,3,4,7,8-HxCDF	101	3
	1,2,3,6,7,8-HxCDF	114	4
	2,3,4,6,7,8-HxCDF	106	3
	1,2,3,7,8,9-HxCDF	109	4
	1,2,3,4,6,7,8-HpCDF	115	4
	1,2,3,4,7,8,9-HpCDF	99	6
	1,2,3,4,6,7,8,9-OCDF	107	4
	2,3,7,8-TCDD	91	4
	1,2,3,7,8-PeCDD	94	7
	1,2,3,4,7,8-HxCDD	107	2
	1,2,3,6,7,8-HxCDD	96	3
	1,2,3,7,8,9-HxCDD	110	3
	1,2,3,4,6,7,8-HpCDD	108	4
	1,2,3,4,6,7,8,9-OCDD	103	4

**Table 4: PCB recoveries**

		[%]	RSD [%]
PCB 13C Recoveries [%]	PCB-#28	98	3
	PCB-#52	86	5
	PCB-#101	101	3
	PCB-#153	101	3
	PCB-#138	100	5
	PCB-#180	107	4
	PCB-#81	92	1
	PCB-#77	85	8
	PCB-#126	93	3
	PCB-#169	98	3
	PCB-#123	91	11
	PCB-#118	84	17
	PCB-#114	100	8
	PCB-#105	91	14
	PCB-#167	79	18
	PCB-#156	89	14
	PCB-#157	93	20
	PCB-#189	87	16