

## Quality Control Certificate

Product: **Universal Column**  
Product No.: 19511  
Lot No.: **720784**

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:	0,09	pg/column	(crit: < 0,70	pg/column)
dl-PCB-TEQ:	0,0347	pg/column	(crit: < 0,05	pg/column)
Sum Total PCB:	5,5	pg/column	(crit: < 300	pg/column)

Results Recoveries:

PCDD/F	87	to 106	%	(crit: 70	to 120	%)
PCB	81	to 100	%	(crit: 70	to 120	%)

This is to certify that the Universal Column, Lot 720784, passed the required test specifications and is released for sale.

date: 13.09.2024 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= 7

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	<0,045
2,3,4,7,8-PeCDF	<dI
1,2,3,4,7,8-HxCDF	0,033
1,2,3,6,7,8-HxCDF	<dI
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	0,19
1,2,3,4,7,8,9-HpCDF	<dI
1,2,3,4,6,7,8,9-OCDF	<0,054
2,3,7,8-TCDD	<dI
1,2,3,7,8-PeCDD	<dI
1,2,3,4,7,8-HxCDD	<dI
1,2,3,6,7,8-HxCDD	0,26
1,2,3,7,8,9-HxCDD	0,051
1,2,3,4,6,7,8-HpCDD	0,23
1,2,3,4,6,7,8,9-OCDD	3,07

Table 2: PCB blank

	[pg/column]
PCB-#28	2,47
PCB-#52	1,31
PCB-#101	0,94
PCB-#153	0,3
PCB-#138	0,31
PCB-#180	0,18
PCB-#81	0,31
PCB-#77	0,634
PCB-#126	0,2593
PCB-#169	0,284
PCB-#123	0,11
PCB-#118	0,57
PCB-#114	0,074
PCB-#105	0,21
PCB-#167	0,274
PCB-#156	0,274
PCB-#157	0,19
PCB-#189	0,458

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,05
upper bound	0,09

PCB-TEQ	[pg/column]
lower bound	0,0347
upper bound	0,0347
Sum DIN	5,5

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Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	91	2
	1,2,3,7,8-PeCDF	95	3
	2,3,4,7,8-PeCDF	93	5
	1,2,3,4,7,8-HxCDF	96	6
	1,2,3,6,7,8-HxCDF	104	7
	2,3,4,6,7,8-HxCDF	102	6
	1,2,3,7,8,9-HxCDF	100	5
	1,2,3,4,6,7,8-HpCDF	106	4
	1,2,3,4,7,8,9-HpCDF	102	4
	1,2,3,4,6,7,8,9-OCDF	99	5
	2,3,7,8-TCDD	90	4
	1,2,3,7,8-PeCDD	90	6
	1,2,3,4,7,8-HxCDD	99	5
	1,2,3,6,7,8-HxCDD	87	4
	1,2,3,7,8,9-HxCDD	102	5
	1,2,3,4,6,7,8-HpCDD	99	4
	1,2,3,4,6,7,8,9-OCDD	87	4

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	90	3
	PCB-#52	86	10
	PCB-#101	93	3
	PCB-#153	91	6
	PCB-#138	100	3
	PCB-#180	99	3
	PCB-#81	87	8
	PCB-#77	89	6
	PCB-#126	85	11
	PCB-#169	81	11
	PCB-#123	93	9
	PCB-#118	89	9
	PCB-#114	94	10
	PCB-#105	95	10
	PCB-#167	84	6
	PCB-#156	86	6
	PCB-#157	85	6
PCB-#189	84	7	