

## Quality Control Certificate

Product: **Universal Column**  
 Product No.: 19511  
 Lot No.: **718251**

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:	0,15	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,0216	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	5,6	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	83	to	101	%	(crit: 70	to	120	%)
	PCB	74	to	97	%	(crit: 70	to	120	%)

This is to certify that the Universal Column, Lot 718251, passed the required test specifications and is released for sale.

date: 15.05.2023 sign.: T. Keshmeir

The company LCTech GmbH is certified according to ISO 9001



## QC-Certificate - 19511 - 718251

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>



QC-Certificate - 19511 - 718251

Results:

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

Blanks: n= 8

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	<0,036
1,2,3,7,8-PeCDF	<dl
2,3,4,7,8-PeCDF	<dl
1,2,3,4,7,8-HxCDF	<0,027
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	<0,018
1,2,3,4,6,7,8,9-OCDF	<0,054
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	0,12
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	<dl
1,2,3,4,6,7,8,9-OCDD	<0,108

Table 2: PCB blank

	[pg/column]
PCB-#28	1,01
PCB-#52	1,31
PCB-#101	0,97
PCB-#153	0,79
PCB-#138	0,56
PCB-#180	0,97
PCB-#81	0,03
PCB-#77	0,263
PCB-#126	0,26
PCB-#169	0,132
PCB-#123	0,38
PCB-#118	0,77
PCB-#114	0,45
PCB-#105	0,74
PCB-#167	0,352
PCB-#156	0,296
PCB-#157	0,21
PCB-#189	0,775

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,13
upper bound	0,15

PCB-TEQ	[pg/column]
lower bound	0,0216
upper bound	0,0216
Sum DIN	5,6

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	89	8
	1,2,3,7,8-PeCDF	85	6
	2,3,4,7,8-PeCDF	92	8
	1,2,3,4,7,8-HxCDF	86	12
	1,2,3,6,7,8-HxCDF	93	15
	2,3,4,6,7,8-HxCDF	94	12
	1,2,3,7,8,9-HxCDF	91	17
	1,2,3,4,6,7,8-HpCDF	101	7
	1,2,3,4,7,8,9-HpCDF	94	5
	1,2,3,4,6,7,8,9-OCDF	93	7
	2,3,7,8-TCDD	88	6
	1,2,3,7,8-PeCDD	93	10
	1,2,3,4,7,8-HxCDD	99	8
	1,2,3,6,7,8-HxCDD	83	9
	1,2,3,7,8,9-HxCDD	95	9
	1,2,3,4,6,7,8-HpCDD	96	6
	1,2,3,4,6,7,8,9-OCDD	88	9

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	92	8
	PCB-#52	97	12
	PCB-#101	97	4
	PCB-#153	94	6
	PCB-#138	95	5
	PCB-#180	92	3
	PCB-#81	89	38
	PCB-#77	93	40
	PCB-#126	94	39
	PCB-#169	94	40
	PCB-#123	79	15
	PCB-#118	74	19
	PCB-#114	83	10
	PCB-#105	76	18
	PCB-#167	76	21
	PCB-#156	77	17
	PCB-#157	75	23
	PCB-#189	76	20