

Quality Control Certificate

Product: **Universal Column**
 Product No.: 19511
 Lot No.: **719062**

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:	0,2	pg/column
		(crit: <	0,7 pg/column)
	dl-PCB-TEQ:	0,008	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	10,8	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	81	to	101	%	(crit: 70	to	120	%)
	PCB	79	to	93	%	(crit: 70	to	120	%)

This is to certify that the Universal Column, Lot 719062, passed the required test specifications and is released for sale.

date: 22.12.2023 sign.: *M. Brack*

The company LCTech GmbH is certified according to ISO 9001



QC-Certificate - 19511 - 719062

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 & 2: blankvalues of PCDD/F and PCB table 3 & 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 - 719062

Results:

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

Blanks: n= 9

Table 1: PCDD/F blank

	[pg/column]
2,3,7,8-TCDF	0,04
1,2,3,7,8-PeCDF	0,06
2,3,4,7,8-PeCDF	<0,081
1,2,3,4,7,8-HxCDF	0,027
1,2,3,6,7,8-HxCDF	0,023
2,3,4,6,7,8-HxCDF	0,1
1,2,3,7,8,9-HxCDF	<0,045
1,2,3,4,6,7,8-HpCDF	0,22
1,2,3,4,7,8,9-HpCDF	0,122
1,2,3,4,6,7,8,9-OCDF	0,14
2,3,7,8-TCDD	0,06
1,2,3,7,8-PeCDD	<0,054
1,2,3,4,7,8-HxCDD	0,072
1,2,3,6,7,8-HxCDD	0,17
1,2,3,7,8,9-HxCDD	0,164
1,2,3,4,6,7,8-HpCDD	0,13
1,2,3,4,6,7,8,9-OCDD	0,33

Table 2: PCB blank

	[pg/column]
PCB-#28	3,54
PCB-#52	3,16
PCB-#101	1,4
PCB-#153	1,11
PCB-#138	0,75
PCB-#180	0,864
PCB-#81	0,03
PCB-#77	0,084
PCB-#126	0,0783
PCB-#169	<dl
PCB-#123	0,59
PCB-#118	0,94
PCB-#114	0,781
PCB-#105	1,03
PCB-#167	0,732
PCB-#156	0,772
PCB-#157	0,64
PCB-#189	1,156

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,2
upper bound	0,2

PCB-TEQ	[pg/column]
lower bound	0,008
upper bound	0,0083
Sum DIN	10,8

Table 3: PCDD/F recoveries

	[%]	RSD [%]	
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	83	6
	1,2,3,7,8-PeCDF	81	13
	2,3,4,7,8-PeCDF	85	18
	1,2,3,4,7,8-HxCDF	94	19
	1,2,3,6,7,8-HxCDF	100	19
	2,3,4,6,7,8-HxCDF	95	20
	1,2,3,7,8,9-HxCDF	94	16
	1,2,3,4,6,7,8-HpCDF	101	6
	1,2,3,4,7,8,9-HpCDF	99	11
	1,2,3,4,6,7,8,9-OCDF	83	10
	2,3,7,8-TCDD	83	6
	1,2,3,7,8-PeCDD	83	16
	1,2,3,4,7,8-HxCDD	95	16
	1,2,3,6,7,8-HxCDD	84	15
	1,2,3,7,8,9-HxCDD	98	16
	1,2,3,4,6,7,8-HpCDD	93	5
	1,2,3,4,6,7,8,9-OCDD	81	8

Table 4: PCB recoveries

	[%]	RSD [%]	
PCB 13C Recoveries [%]	PCB-#28	91	8
	PCB-#52	89	15
	PCB-#101	92	7
	PCB-#153	91	10
	PCB-#138	93	5
	PCB-#180	88	8
	PCB-#81	79	10
	PCB-#77	81	11
	PCB-#126	81	22
	PCB-#169	82	26
	PCB-#123	86	5
	PCB-#118	83	5
	PCB-#114	89	7
	PCB-#105	84	8
	PCB-#167	82	8
	PCB-#156	84	11
	PCB-#157	83	10
	PCB-#189	80	13