

Quality Control Certificate

Product: **Universal Column**

Product No.: 19511

Lot No.: **721573**

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:	0,56	pg/column
		(crit: <	0,70 pg/column)
	dl-PCB-TEQ:	0,0434	pg/column
		(crit: <	0,05 pg/column)
	Sum Total PCB:	6,4	pg/column
		(crit: <	300 pg/column)

Results Recoveries:	PCDD/F	83	to	101	%	(crit: 70	to	120	%)
	PCB	70	to	118	%	(crit: 70	to	120	%)

This is to certify that the Universal Column, Lot 721573, passed the required test specifications and is released for sale.

date: 17.04.2025 sign.: T. Kehmeier

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 & 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>

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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	0,15
1,2,3,7,8-PeCDF	0,32
2,3,4,7,8-PeCDF	0,37
1,2,3,4,7,8-HxCDF	0,11
1,2,3,6,7,8-HxCDF	0,094
2,3,4,6,7,8-HxCDF	0,11
1,2,3,7,8,9-HxCDF	0,14
1,2,3,4,6,7,8-HpCDF	0,21
1,2,3,4,7,8,9-HpCDF	0,152
1,2,3,4,6,7,8,9-OCDF	0,19
2,3,7,8-TCDD	0,08
1,2,3,7,8-PeCDD	0,21
1,2,3,4,7,8-HxCDD	0,167
1,2,3,6,7,8-HxCDD	0,41
1,2,3,7,8,9-HxCDD	0,222
1,2,3,4,6,7,8-HpCDD	0,15
1,2,3,4,6,7,8,9-OCDD	1,47

Table 2: PCB blank

	[pg/column]
PCB-#28	1,1
PCB-#52	1,51
PCB-#101	0,84
PCB-#153	1,19
PCB-#138	1,39
PCB-#180	0,343
PCB-#81	0,14
PCB-#77	0,085
PCB-#126	0,368
PCB-#169	0,214
PCB-#123	0,25
PCB-#118	0,63
PCB-#114	0,255
PCB-#105	0,12
PCB-#167	0,964
PCB-#156	1,209
PCB-#157	1,13
PCB-#189	1,115

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,56
upper bound	0,56

PCB-TEQ	[pg/column]
lower bound	0,0434
upper bound	0,0434
Sum DIN	6,4

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Table 3: PCDD/F recoveries

		[%]	RSD [%]
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	99	5
	1,2,3,7,8-PeCDF	95	5
	2,3,4,7,8-PeCDF	92	1
	1,2,3,4,7,8-HxCDF	85	5
	1,2,3,6,7,8-HxCDF	100	5
	2,3,4,6,7,8-HxCDF	95	2
	1,2,3,7,8,9-HxCDF	91	6
	1,2,3,4,6,7,8-HpCDF	101	4
	1,2,3,4,7,8,9-HpCDF	90	6
	1,2,3,4,6,7,8,9-OCDF	96	8
	2,3,7,8-TCDD	97	5
	1,2,3,7,8-PeCDD	96	2
	1,2,3,4,7,8-HxCDD	91	3
	1,2,3,6,7,8-HxCDD	83	4
	1,2,3,7,8,9-HxCDD	93	4
	1,2,3,4,6,7,8-HpCDD	91	3
	1,2,3,4,6,7,8,9-OCDD	92	3

Table 4: PCB recoveries

		[%]	RSD [%]
PCB 13C Recoveries [%]	PCB-#28	97	3
	PCB-#52	99	4
	PCB-#101	97	3
	PCB-#153	86	4
	PCB-#138	99	3
	PCB-#180	97	4
	PCB-#81	97	4
	PCB-#77	104	4
	PCB-#126	116	6
	PCB-#169	118	6
	PCB-#123	77	2
	PCB-#118	73	4
	PCB-#114	85	8
	PCB-#105	73	4
	PCB-#167	70	7
	PCB-#156	70	3
	PCB-#157	70	2
	PCB-#189	71	4