Quality Control Certificate

Product:	**Universal Column**
Product No.:	19511
Lot No.:	**723226**

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:	0,07	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,0072	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	35,7	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	90	to	113	%	(crit:	70	to	120	%)
	PCB	71	to	106	%	(crit:	70	to	120	%)

This is to certify that the Universal Column, Lot 723226, passed the required test specifications and is released for sale.

date: 31.03.2026 sign.: M. Bradis

The company LCTech GmbH is certified according to ISO 9001

LCTech GmbH
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Germany

QC-Certificate - 19511 - 723226

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

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QC-Certificate - 19511 - 723226

Results:

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

Blanks: n= 6

Table 1: PCDD/F blank

		[pg/column]
sample amount [pg/column]	2,3,7,8-TCDF	<dl
	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	<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	<dl
	1,2,3,4,6,7,8,9-OCDF	<dl
	2,3,7,8-TCDD	<0,036
	1,2,3,7,8-PeCDD	<dl
	1,2,3,4,7,8-HxCDD	<0,027
	1,2,3,6,7,8-HxCDD	<0,108
	1,2,3,7,8,9-HxCDD	<dl
	1,2,3,4,6,7,8-HpCDD	0,17
	1,2,3,4,6,7,8,9-OCDD	0,86

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,03
upper bound	0,07

Table 2: PCB blank

		[pg/column]
sample amount [pg/sample]	PCB-#28	15,65
	PCB-#52	14,53
	PCB-#101	3,26
	PCB-#153	1,21
	PCB-#138	0,91
	PCB-#180	0,182
	PCB-#81	0,09
	PCB-#77	0,318
	PCB-#126	0,0588
	PCB-#169	0,041
	PCB-#123	0,13
	PCB-#118	1,04
	PCB-#114	0,028
	PCB-#105	0,12
	PCB-#167	<0,027
	PCB-#156	0,14
	PCB-#157	0,05
	PCB-#189	0,111

PCB-TEQ	[pg/column]
lower bound	0,0072
upper bound	0,0072
Sum DIN	35,7

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	94	5
1,2,3,7,8-PeCDF	102	6
2,3,4,7,8-PeCDF	97	5
1,2,3,4,7,8-HxCDF	95	9
1,2,3,6,7,8-HxCDF	95	8
2,3,4,6,7,8-HxCDF	95	9
1,2,3,7,8,9-HxCDF	99	10
1,2,3,4,6,7,8-HpCDF	113	4
1,2,3,4,7,8,9-HpCDF	97	4
1,2,3,4,6,7,8,9-OCDF	96	4
2,3,7,8-TCDD	99	3
1,2,3,7,8-PeCDD	102	6
1,2,3,4,7,8-HxCDD	110	6
1,2,3,6,7,8-HxCDD	90	6
1,2,3,7,8,9-HxCDD	107	5
1,2,3,4,6,7,8-HpCDD	102	4
1,2,3,4,6,7,8,9-OCDD	96	3

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	93	3
PCB-#52	103	4
PCB-#101	101	1
PCB-#153	89	2
PCB-#138	90	3
PCB-#180	89	5
PCB-#81	98	3
PCB-#77	105	5
PCB-#126	106	6
PCB-#169	102	7
PCB-#123	71	6
PCB-#118	76	8
PCB-#114	81	5
PCB-#105	82	6
PCB-#167	82	7
PCB-#156	85	10
PCB-#157	78	10
PCB-#189	84	9

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