Quality Control Certificate

Product: **Universal Column**

Product No.: 19511

Lot No.: 723469

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:	0,005	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	26,9	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	77	to	112	%	(crit:	70	to	120	%)
	PCB	83	to	116	%	(crit:	70	to	120	%)

This is to certify that the Universal Column, Lot 723469, passed the required test specifications and is released for sale.

date: 15.04.2026 sign.: M. Bradis

The company LCTech GmbH is certified according to ISO 9001

LCTech GmbH
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Germany

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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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Results:

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

Blanks: n= 6

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	0,04
	1,2,3,7,8-PeCDF	<dl
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	<dl
	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	<dl
	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	<0,054
	1,2,3,4,7,8-HxCDD	<0,027
	1,2,3,6,7,8-HxCDD	<dl
	1,2,3,7,8,9-HxCDD	<dl
	1,2,3,4,6,7,8-HpCDD	<0,09
	1,2,3,4,6,7,8,9-OCDD	0,47

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,08
upper bound	0,09

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	12,83
	PCB-#52	10,99
	PCB-#101	1,93
	PCB-#153	0,68
	PCB-#138	0,5
	PCB-#180	<0,18
	PCB-#81	0,05
	PCB-#77	0,2
	PCB-#126	0,0467
	PCB-#169	<0,027
	PCB-#123	0,05
	PCB-#118	0,96
	PCB-#114	0,025
	PCB-#105	0,18
	PCB-#167	<0,027
	PCB-#156	0,143
	PCB-#157	0,03
	PCB-#189	<0,0072

PCB-TEQ	[pg/column]
lower bound	0,005
upper bound	0,005
Sum DIN	26,9

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	93	2
1,2,3,7,8-PeCDF	99	4
2,3,4,7,8-PeCDF	97	5
1,2,3,4,7,8-HxCDF	98	4
1,2,3,6,7,8-HxCDF	108	4
2,3,4,6,7,8-HxCDF	103	4
1,2,3,7,8,9-HxCDF	102	3
1,2,3,4,6,7,8-HpCDF	112	2
1,2,3,4,7,8,9-HpCDF	77	3
1,2,3,4,6,7,8,9-OCDF	101	4
2,3,7,8-TCDD	96	3
1,2,3,7,8-PeCDD	105	4
1,2,3,4,7,8-HxCDD	109	3
1,2,3,6,7,8-HxCDD	95	3
1,2,3,7,8,9-HxCDD	112	3
1,2,3,4,6,7,8-HpCDD	103	2
1,2,3,4,6,7,8,9-OCDD	94	3

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	92	3
PCB-#52	116	2
PCB-#101	110	1
PCB-#153	95	2
PCB-#138	94	2
PCB-#180	95	1
PCB-#81	96	4
PCB-#77	95	5
PCB-#126	94	7
PCB-#169	93	9
PCB-#123	105	4
PCB-#118	105	5
PCB-#114	109	2
PCB-#105	108	5
PCB-#167	88	5
PCB-#156	90	6
PCB-#157	93	6
PCB-#189	83	4

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