Quality Control Certificate

Product:	**Universal Column**
Product No.:	19511
Lot No.:	**722495**

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:	0,06	pg/column
		(crit: < 0,70	pg/column)
	dl-PCB-TEQ:	0,008	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	2,9	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	87	to	109	%	(crit:	70	to	120	%)
	PCB	77	to	107	%	(crit:	70	to	120	%)

This is to certify that the Universal Column, Lot 722495, passed the required test specifications and is released for sale.

date: 05.09.2025 sign.: M. Brachs

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= 9

Table 1: PCDD/F blank

sample amount [pg/column]		[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	<dl
	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	<0,063
	1,2,3,4,7,8,9-HpCDF	<dl
	1,2,3,4,6,7,8,9-OCDF	<0,054
	2,3,7,8-TCDD	<dl
	1,2,3,7,8-PeCDD	<dl
	1,2,3,4,7,8-HxCDD	<dl
	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	<0,09
	1,2,3,4,6,7,8,9-OCDD	0,54

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	1,34
	PCB-#52	0,77
	PCB-#101	0,3
	PCB-#153	0,45
	PCB-#138	<dl
	PCB-#180	<0,18
	PCB-#81	0,05
	PCB-#77	0,251
	PCB-#126	0,0593
	PCB-#169	0,067
	PCB-#123	0,01
	PCB-#118	0,17
	PCB-#114	0,028
	PCB-#105	0,11
	PCB-#167	<dl
	PCB-#156	<0,126
	PCB-#157	0,08
	PCB-#189	0,154

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,01
upper bound	0,06

PCB-TEQ	[pg/column]
lower bound	0,008
upper bound	0,008
Sum DIN	2,9

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	92	6
1,2,3,7,8-PeCDF	88	6
2,3,4,7,8-PeCDF	96	17
1,2,3,4,7,8-HxCDF	98	11
1,2,3,6,7,8-HxCDF	109	11
2,3,4,6,7,8-HxCDF	101	10
1,2,3,7,8,9-HxCDF	102	11
1,2,3,4,6,7,8-HpCDF	109	8
1,2,3,4,7,8,9-HpCDF	99	9
1,2,3,4,6,7,8,9-OCDF	102	8
2,3,7,8-TCDD	87	10
1,2,3,7,8-PeCDD	96	19
1,2,3,4,7,8-HxCDD	106	10
1,2,3,6,7,8-HxCDD	91	10
1,2,3,7,8,9-HxCDD	103	11
1,2,3,4,6,7,8-HpCDD	102	5
1,2,3,4,6,7,8,9-OCDD	88	9

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	83	12
PCB-#52	77	19
PCB-#101	94	6
PCB-#153	90	9
PCB-#138	93	5
PCB-#180	91	3
PCB-#81	97	6
PCB-#77	87	14
PCB-#126	92	13
PCB-#169	86	17
PCB-#123	100	13
PCB-#118	93	14
PCB-#114	107	16
PCB-#105	102	20
PCB-#167	83	11
PCB-#156	79	10
PCB-#157	81	13
PCB-#189	84	12

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