Quality Control Certificate

Product:	**Universal Column**
Product No.:	19511
Lot No.:	**720186**

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: < 0,7	pg/column)
	dl-PCB-TEQ:	0,0051	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	2,6	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	73	to	86	%	(crit:	70	to	120	%)
	PCB	76	to	89	%	(crit:	70	to	120	%)

This is to certify that the Universal Column, Lot 720186, passed the required test specifications and is released for sale.

date: 15.04.2024 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= 7

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	<dl
	1,2,3,7,8-PeCDF	<0,045
	2,3,4,7,8-PeCDF	<dl
	1,2,3,4,7,8-HxCDF	0,042
	1,2,3,6,7,8-HxCDF	0,041
	2,3,4,6,7,8-HxCDF	0,05
	1,2,3,7,8,9-HxCDF	<0,045
	1,2,3,4,6,7,8-HpCDF	0,25
	1,2,3,4,7,8,9-HpCDF	<dl
	1,2,3,4,6,7,8,9-OCDF	0,1
	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	<dl
	1,2,3,7,8,9-HxCDD	<0,027
	1,2,3,4,6,7,8-HpCDD	<0,09
	1,2,3,4,6,7,8,9-OCDD	0,34

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	1,07
	PCB-#52	0,67
	PCB-#101	0,32
	PCB-#153	0,31
	PCB-#138	0,19
	PCB-#180	<dl
	PCB-#81	<0,027
	PCB-#77	0,064
	PCB-#126	0,0383
	PCB-#169	0,04
	PCB-#123	<dl
	PCB-#118	0,26
	PCB-#114	<0,045
	PCB-#105	0,1
	PCB-#167	0,172
	PCB-#156	0,093
	PCB-#157	0,09
	PCB-#189	0,019

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,02
upper bound	0,07

PCB-TEQ	[pg/column]
lower bound	0,0051
upper bound	0,0051
Sum DIN	2,6

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]		[%]	RSD [%]
	2,3,7,8-TCDF	81	7
	1,2,3,7,8-PeCDF	84	5
	2,3,4,7,8-PeCDF	85	5
	1,2,3,4,7,8-HxCDF	76	6
	1,2,3,6,7,8-HxCDF	82	7
	2,3,4,6,7,8-HxCDF	80	8
	1,2,3,7,8,9-HxCDF	81	7
	1,2,3,4,6,7,8-HpCDF	86	8
	1,2,3,4,7,8,9-HpCDF	81	10
	1,2,3,4,6,7,8,9-OCDF	85	5
	2,3,7,8-TCDD	78	9
	1,2,3,7,8-PeCDD	83	8
	1,2,3,4,7,8-HxCDD	82	9
	1,2,3,6,7,8-HxCDD	73	5
	1,2,3,7,8,9-HxCDD	82	7
	1,2,3,4,6,7,8-HpCDD	79	10
	1,2,3,4,6,7,8,9-OCDD	81	5

Table 4: PCB recoveries

PCB 13C Recoveries [%]		[%]	RSD [%]
	PCB-#28	86	8
	PCB-#52	82	13
	PCB-#101	83	8
	PCB-#153	85	7
	PCB-#138	89	6
	PCB-#180	85	7
	PCB-#81	78	11
	PCB-#77	79	12
	PCB-#126	81	10
	PCB-#169	83	9
	PCB-#123	79	7
	PCB-#118	76	10
	PCB-#114	81	6
	PCB-#105	78	7
	PCB-#167	77	10
	PCB-#156	78	8
	PCB-#157	77	10
	PCB-#189	79	13

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