Quality Control Certificate

Product:	**Universal Column**
Product No.:	19511
Lot No.:	**722605**

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:	0,0041	pg/column
		(crit: < 0,05	pg/column)
	Sum Total PCB:	3,8	pg/column
		(crit: < 300	pg/column)

Results Recoveries:	PCDD/F	84	to	116	%	(crit:	70	to	120	%)
	PCB	83	to	105	%	(crit:	70	to	120	%)

This is to certify that the Universal Column, Lot 722605, passed the required test specifications and is released for sale.

date: 17.09.2025 sign.: M. Bradis

The company LCTech GmbH is certified according to ISO 9001

LCTech GmbH
Daimlerstrasse 4, 84419 Obertaufkirchen
Germany

QC-Certificate - 19511 - 722605

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.

LCTech GmbH
Daimlerstrasse 4, 84419 Obertaufkirchen, Germany,
Tel +49 8082 2717 - 0, info@lctech.de, www.lctech.de

QC-Certificate - 19511 - 722605

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	<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	<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	<dl
	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	0,46

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,02
upper bound	0,06

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	1,82
	PCB-#52	1,31
	PCB-#101	0,39
	PCB-#153	0,25
	PCB-#138	<dl
	PCB-#180	<0,18
	PCB-#81	0,04
	PCB-#77	0,37
	PCB-#126	0,0309
	PCB-#169	0,029
	PCB-#123	<dl
	PCB-#118	0,12
	PCB-#114	<dl
	PCB-#105	0,09
	PCB-#167	<0,027
	PCB-#156	0,137
	PCB-#157	0,05
	PCB-#189	0,101

PCB-TEQ	[pg/column]
lower bound	0,0041
upper bound	0,0041
Sum DIN	3,8

LCTech GmbH
Daimlerstrasse 4, 84419 Obertaufkirchen, Germany,
Tel +49 8082 2717 - 0, info@lctech.de, www.lctech.de

QC-Certificate - 19511 - 722605

Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]		[%]	RSD [%]
	2,3,7,8-TCDF	97	2
	1,2,3,7,8-PeCDF	89	3
	2,3,4,7,8-PeCDF	100	10
	1,2,3,4,7,8-HxCDF	107	4
	1,2,3,6,7,8-HxCDF	116	4
	2,3,4,6,7,8-HxCDF	106	2
	1,2,3,7,8,9-HxCDF	105	4
	1,2,3,4,6,7,8-HpCDF	113	5
	1,2,3,4,7,8,9-HpCDF	104	5
	1,2,3,4,6,7,8,9-OCDF	93	4
	2,3,7,8-TCDD	89	4
	1,2,3,7,8-PeCDD	96	8
	1,2,3,4,7,8-HxCDD	107	3
	1,2,3,6,7,8-HxCDD	91	6
	1,2,3,7,8,9-HxCDD	95	4
	1,2,3,4,6,7,8-HpCDD	102	2
	1,2,3,4,6,7,8,9-OCDD	84	4

Table 4: PCB recoveries

PCB 13C Recoveries [%]		[%]	RSD [%]
	PCB-#28	98	3
	PCB-#52	96	2
	PCB-#101	99	2
	PCB-#153	98	2
	PCB-#138	99	3
	PCB-#180	105	12
	PCB-#81	102	6
	PCB-#77	100	7
	PCB-#126	100	10
	PCB-#169	95	16
	PCB-#123	92	4
	PCB-#118	88	7
	PCB-#114	92	3
	PCB-#105	87	4
	PCB-#167	85	6
	PCB-#156	88	9
	PCB-#157	91	15
	PCB-#189	83	5

LCTech GmbH
Daimlerstrasse 4, 84419 Obertaufkirchen, Germany,
Tel +49 8082 2717 - 0, info@lctech.de, www.lctech.de