Quality Control Certificate

Product:	**Florisil Column**
Product No.:	13807
Lot No.:	**717298**

Storage Recommendations: Store the column at room temperature below 25°C

Description: The Florisil 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:	0,29	pg/column
		(crit: < 0,7	pg/column)
	dl-PCB-TEQ:		pg/column
		(crit: < 0,05	pg/column)
	Sum Indikator PCB:		pg/column
		(crit: < 100	pg/column)

Results Recoveries:	PCDD/F	74	to	116	%	(crit:	70	to	120	%)
	PCB	80	to	119	%	(crit:	70	to	120	%)

This is to certify that the Florisil Column, Lot 13807, passed the required test specifications and is released for sale.

date: 28.10.2022 sign.: T. Kechemeir

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 Florisil Column is designed and prepared for usage with the Universal/standard & Smart 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	All the Columns (n>5) have to perform a clean-up of a solvent blank (10 mL n-hexane), spiked with a 13C - labelled quantifier-standard solution with a single Column method onto a DEXTech Plus system. The fractions 1 (PCB) and 2 (PCDD/F) are spiked with 13C - labelled recovery- standard solutions and evaporated with the D-EVA vacuum centrifuge. The extracts are measured with a HRMS-DFS from Thermo Fisher Scientific with a resolution of R > 10000. The HRGCs are equipped with 60 m DB5 MS Columns. For PCDD/F 5µL are injected via PTV, for PCB 2µL via SSL.
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 Florisil 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= 8

Table 1: PCDD/F blank

sample amount [pg/column]	[pg/column]
2,3,7,8-TCDF	0,05
1,2,3,7,8-PeCDF	0,12
2,3,4,7,8-PeCDF	0,12
1,2,3,4,7,8-HxCDF	<0,027
1,2,3,6,7,8-HxCDF	0,056
2,3,4,6,7,8-HxCDF	0,05
1,2,3,7,8,9-HxCDF	0,06
1,2,3,4,6,7,8-HpCDF	0,17
1,2,3,4,7,8,9-HpCDF	0,072
1,2,3,4,6,7,8,9-OCDF	0,1
2,3,7,8-TCDD	0,05
1,2,3,7,8-PeCDD	0,13
1,2,3,4,7,8-HxCDD	0,054
1,2,3,6,7,8-HxCDD	0,26
1,2,3,7,8,9-HxCDD	0,035
1,2,3,4,6,7,8-HpCDD	0,42
1,2,3,4,6,7,8,9-OCDD	4,18

Table 2: PCB blank

sample amount [pg/sample]	[pg/column]
PCB-#28	3,35
PCB-#52	3,12
PCB-#101	1,57
PCB-#153	1,53
PCB-#138	1,52
PCB-#180	1,32
PCB-#81	<dl
PCB-#77	<dl
PCB-#126	0
PCB-#169	0,788
PCB-#123	0,98
PCB-#118	1,19
PCB-#114	1,23
PCB-#105	1,3
PCB-#167	1,19
PCB-#156	1,228
PCB-#157	0,91
PCB-#189	1,37

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,29
upper bound	0,29

PCB-TEQ	[pg/column]
lower bound	0,1342
upper bound	0,1342
Sum DIN	12,4

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Table 3: PCDD/F recoveries

PCDD/F 13C Recoveries [%]	[%]	RSD [%]
2,3,7,8-TCDF	113	5
1,2,3,7,8-PeCDF	110	6
2,3,4,7,8-PeCDF	107	5
1,2,3,4,7,8-HxCDF	104	5
1,2,3,6,7,8-HxCDF	109	4
2,3,4,6,7,8-HxCDF	109	6
1,2,3,7,8,9-HxCDF	111	13
1,2,3,4,6,7,8-HpCDF	105	4
1,2,3,4,7,8,9-HpCDF	108	8
1,2,3,4,6,7,8,9-OCDF	90	13
2,3,7,8-TCDD	113	7
1,2,3,7,8-PeCDD	116	7
1,2,3,4,7,8-HxCDD	111	8
1,2,3,6,7,8-HxCDD	95	8
1,2,3,7,8,9-HxCDD	112	9
1,2,3,4,6,7,8-HpCDD	97	7
1,2,3,4,6,7,8,9-OCDD	74	7

Table 4: PCB recoveries

PCB 13C Recoveries [%]	[%]	RSD [%]
PCB-#28	82	4
PCB-#52	80	2
PCB-#101	91	4
PCB-#153	84	2
PCB-#138	91	2
PCB-#180	98	5
PCB-#81	95	0
PCB-#77	100	0
PCB-#126	116	0
PCB-#169	119	0
PCB-#123	102	5
PCB-#118	94	5
PCB-#114	101	6
PCB-#105	100	6
PCB-#167	102	2
PCB-#156	104	5
PCB-#157	106	5
PCB-#189	118	7

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