Quality Control Certificate

Product:	**Florisil Column**
Product No.:	13807
Lot No.:	**717707**

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:	0,17	pg/column
	(crit: < 0,7	pg/column)
dl-PCB-TEQ:	0,0301	pg/column
	(crit: < 0,05	pg/column)
Sum Total PCB:	4,3	pg/column
	(crit: < 300	pg/column)

Results Recoveries:

PCDD/F	72	to	104	%	(crit:	45	to	130	%)
PCB	75	to	105	%	(crit:	45	to	130	%)

This is to certify that the Florisil Column, Lot 717707, passed the required test specifications and is released for sale.

date: 01.03.2023   sign.: *T. Kehemeir*

The company LCTech GmbH is certified according to ISO 9001

Hazards:	NOT FOR HUMAN OR DRUG USE!
	The 209 Column is designed and prepared for usage with the Alumina 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 default alumina plus or pure 209 method onto a DEXTech Pure or Plus system. There are 2 fractions, fraction 1 (all 209 PCB) and fraction 2 (PCDD/F). Both fractions are spiked with the corresponding 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
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.

Results:

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

Blanks: n= 5

Table 1: PCDD/F blank

sample amount [pg/column]		[pg/column]
	2,3,7,8-TCDF	0,09
	1,2,3,7,8-PeCDF	<0,045
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	0,034
	1,2,3,6,7,8-HxCDF	<0,018
	2,3,4,6,7,8-HxCDF	<0,045
	1,2,3,7,8,9-HxCDF	<0,045
	1,2,3,4,6,7,8-HpCDF	<0,063
	1,2,3,4,7,8,9-HpCDF	0,048
	1,2,3,4,6,7,8,9-OCDF	32,03
	2,3,7,8-TCDD	<0,036
	1,2,3,7,8-PeCDD	0,1
	1,2,3,4,7,8-HxCDD	0,046
	1,2,3,6,7,8-HxCDD	<dl
	1,2,3,7,8,9-HxCDD	0,037
	1,2,3,4,6,7,8-HpCDD	<0,09
	1,2,3,4,6,7,8,9-OCDD	0,27

Table 2: PCB blank

sample amount [pg/sample]		[pg/column]
	PCB-#28	1,45
	PCB-#52	1,04
	PCB-#101	0,57
	PCB-#153	0,56
	PCB-#138	0,25
	PCB-#180	0,406
	PCB-#81	<dl
	PCB-#77	<dl
	PCB-#126	<dl
	PCB-#169	<dl
	PCB-#123	<0,18
	PCB-#118	0,3
	PCB-#114	0,112
	PCB-#105	0,19
	PCB-#167	0,096
	PCB-#156	0,154
	PCB-#157	0,18
	PCB-#189	0,201

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,17
upper bound	0,17

PCB-TEQ	[pg/column]
lower bound	0,0301
upper bound	0,0301
Sum DIN	4,3

Table 3: PCDD/F recoveries

		[%]	RSD [%]
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	90	10
	1,2,3,7,8-PeCDF	95	7
	2,3,4,7,8-PeCDF	96	8
	1,2,3,4,7,8-HxCDF	89	5
	1,2,3,6,7,8-HxCDF	98	6
	2,3,4,6,7,8-HxCDF	90	7
	1,2,3,7,8,9-HxCDF	99	10
	1,2,3,4,6,7,8-HpCDF	93	13
	1,2,3,4,7,8,9-HpCDF	98	9
	1,2,3,4,6,7,8,9-OCDF	81	15
	2,3,7,8-TCDD	90	9
	1,2,3,7,8-PeCDD	104	7
	1,2,3,4,7,8-HxCDD	94	6
	1,2,3,6,7,8-HxCDD	80	5
	1,2,3,7,8,9-HxCDD	90	8
	1,2,3,4,6,7,8-HpCDD	89	13
	1,2,3,4,6,7,8,9-OCDD	72	14

Table 4: PCB recoveries

		[%]	RSD [%]
PCB 13C Recoveries [%]	PCB-#28	94	10
	PCB-#52	78	10
	PCB-#101	98	8
	PCB-#153	105	7
	PCB-#138	99	6
	PCB-#180	86	7
	PCB-#81	82	0
	PCB-#77	92	0
	PCB-#126	97	0
	PCB-#169	87	0
	PCB-#123	104	7
	PCB-#118	98	8
	PCB-#114	83	7
	PCB-#105	92	7
	PCB-#167	98	6
	PCB-#156	79	10
	PCB-#157	94	8
	PCB-#189	75	13