

Quality Control Certificate

Product: **EVOLUTION Universal Column**
 Product No.: 20085
 Lot No.: **723708**

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


Description: The EVOLUTION 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:	0,05	pg/column				
		(crit: <	0,70	pg/column)			
	dl-PCB-TEQ:	0,0025	pg/column				
		(crit: <	0,05	pg/column)			
	Sum Total PCB:	18,1	pg/column				
		(crit: <	300	pg/column)			
Results Recoveries:	PCDD/F	91	to 111	%	(crit: 70	to 120	%)
	PCB	87	to 108	%	(crit: 70	to 120	%)

This is to certify that the EVOLUTION Universal Column, Lot 723708, passed the required test specifications and is released for sale.

date: 16.06.2026 sign.: 

The company LCTech GmbH is certified according to ISO 9001



QC-Certificate - 20085 - 723708

Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>The EVOLUTION 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.</p>
Quality Control:	<p>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.</p>
Quality Management:	<p>This product was produced using a Quality Management System registered to the ISO 9001:2015 (DEKRA)</p>
Documentation / Data Attached:	<p>table 1 & 2: blankvalues of PCDD/F and PCB table 3 & 4: 13C-Recoveries of PCDD/F and PCB</p>
Analytics	<p>This is to certify that the EVOLUTION Universal Column, Lot , passed the required test specifications and is released for sale.</p>
Remarks	<p>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.</p>

QC-Certificate - 20085 - 723708

Results:

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

Blanks: n= 6

Table 1: PCDD/F blank

	[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	<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	<dl
1,2,3,4,6,7,8-HpCDD	0,1
1,2,3,4,6,7,8,9-OCDD	0,45

Table 2: PCB blank

	[pg/sample]
PCB-#28	7,84
PCB-#52	6,23
PCB-#101	1,68
PCB-#153	1,35
PCB-#138	0,79
PCB-#180	0,23
PCB-#81	0,03
PCB-#77	0,273
PCB-#126	0,0201
PCB-#169	<0,027
PCB-#123	0,04
PCB-#118	0,54
PCB-#114	0,021
PCB-#105	0,11
PCB-#167	0,058
PCB-#156	<0,126
PCB-#157	0,04
PCB-#189	0,072

PCDD/F TEQ (2005)	[pg/column]
lower bound	0
upper bound	0,05

PCB-TEQ	[pg/column]
lower bound	0,0025
upper bound	0,0025
Sum DIN	18,1

Table 3: PCDD/F recoveries

	[%]	RSD [%]
2,3,7,8-TCDF	95	6
1,2,3,7,8-PeCDF	99	4
2,3,4,7,8-PeCDF	101	3
1,2,3,4,7,8-HxCDF	94	4
1,2,3,6,7,8-HxCDF	100	2
2,3,4,6,7,8-HxCDF	102	2
1,2,3,7,8,9-HxCDF	106	3
1,2,3,4,6,7,8-HpCDF	109	2
1,2,3,4,7,8,9-HpCDF	101	6
1,2,3,4,6,7,8,9-OCDF	111	5
2,3,7,8-TCDD	94	3
1,2,3,7,8-PeCDD	101	3
1,2,3,4,7,8-HxCDD	106	2
1,2,3,6,7,8-HxCDD	91	3
1,2,3,7,8,9-HxCDD	107	2
1,2,3,4,6,7,8-HpCDD	102	2
1,2,3,4,6,7,8,9-OCDD	99	5

Table 4: PCB recoveries

	[%]	RSD [%]
PCB-#28	96	3
PCB-#52	96	3
PCB-#101	88	2
PCB-#153	90	2
PCB-#138	95	2
PCB-#180	95	2
PCB-#81	101	4
PCB-#77	107	5
PCB-#126	108	5
PCB-#169	106	5
PCB-#123	94	6
PCB-#118	93	7
PCB-#114	99	4
PCB-#105	91	5
PCB-#167	87	6
PCB-#156	94	6
PCB-#157	89	6
PCB-#189	88	5