Quality Control Certificate

Product:	**Smart Column**
Product No.:	**14307**
Lot No.:	**3000271**

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

Description: The smart column is part of a 3-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 via DEva 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:	0,007	pg/column
	(crit: < 0,05	pg/column)
Sum Indikator PCB:	3,9	pg/column
	(crit: < 100	pg/column)

Results Recoveries:

PCDD/F	80	to	113	% (crit: 70 to 120)
PCB	85	to	102	% (crit: 70 to 120)

This is to certify that smart column, Lot 3000271, passed the required test specifications and is released for sale.

date: 06.07.2021   sign.: _T. Kehemeir_

The company LCTech GmbH is certified according to ISO 9001:2015

DEKRA Certification

LCTech GmbH   **Tel. +49 8082 2717-0**
Daimlerstraße 4   **Fax +49 8082 2717-100**
84419 Obertaufkirchen **info@LCTech.de**
Germany   **www.LCTech.de**

Hazards:

NOT FOR HUMAN OR DRUG USE!

The smart 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:   Blank values 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 silica or filters without any effect on the clean-up.

The company LCTech GmbH is certified according to ISO 9001:2015

LCTech GmbH
Daimlerstraße 4
84419 Obertaufkirchen
Germany

Tel. +49 8082 2717-0
Fax +49 8082 2717-100
info@LCTech.de
www.LCTech.de

Results:

Lockmass check:

No significant disturbances, or indicators for contaminations are detected.

Blanks:

Table 1: PCDD/F blank (n=6)

Congeneres:	[pg/column]:
2,3,7,8-TCDF	0,06
1,2,3,7,8-PeCDF	0,06
2,3,4,7,8-PeCDF	<0,081
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	<0,045
1,2,3,4,6,7,8-HpCDF	<dl
1,2,3,4,7,8,9-HpCDF	<0,018
OCDF	<dl
2,3,7,8-TCDD	<dl
1,2,3,7,8-PeCDD	<0,054
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
OCDD	<0,108

TEQ (WHO 2005)	
lower bound	0,07
upper bound	0,09

Table 2: PCB blank (n=6)

Congeneres:	[pg/column]:
PCB 28	0,76
PCB 52	0,98
PCB 77	0,05
PCB 81	<0,027
PCB 101	0,8
PCB 123	0,0234
PCB 118	0,35
PCB 114	0,0654
PCB 105	<0,081
PCB 126	0,0571
PCB 153	0,61
PCB 138	0,55
PCB 167	0,058
PCB 156	<0,126
PCB 157	0,043
PCB 169	0,03
PCB 180	0,19
PCB 189	0,086

TEQ (WHO 2005)	
lower bound	0,0066
upper bound	0,0066

Sum DIN PCB	3,9

The company LCTech GmbH is certified according to ISO 9001:2015

Results:

13C-Recoveries

Table 3: PCDD/F 13C-recoveries (n=6)

Congeneres:	13C rec [%]
2,3,7,8-TCDF	89
1,2,3,7,8-PeCDF	92
2,3,4,7,8-PeCDF	92
1,2,3,4,7,8-HxCDF	85
1,2,3,6,7,8-HxCDF	92
2,3,4,6,7,8-HxCDF	87
1,2,3,7,8,9-HxCDF	113
1,2,3,4,6,7,8-HpCDF	90
1,2,3,4,7,8,9-HpCDF	108
OCDF	111
2,3,7,8-TCDD	84
1,2,3,7,8-PeCDD	96
1,2,3,4,7,8-HxCDD	90
1,2,3,6,7,8-HxCDD	80
1,2,3,7,8,9-HxCDD	108
1,2,3,4,6,7,8-HpCDD	96
OCDD	96

Table 4: PCB 13C-recoveries (n=6)

Congeneres:	13C rec [%]
PCB 28	90
PCB 52	91
PCB 77	102
PCB 81	85
PCB 101	93
PCB 123	87
PCB 118	88
PCB 114	90
PCB 105	90
PCB 126	88
PCB 153	90
PCB 138	94
PCB 167	88
PCB 156	95
PCB 157	92
PCB 169	88
PCB 180	99
PCB 189	92

The company LCTech GmbH is certified according to ISO 9001:2015