

Quality Control Certificate

Product: **209PCB**
Product No.: 20325
Lot No.: **721596**

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

Description: The 209PCB 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 all 209 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:	0,38	pg/column	(crit: 0,7 pg/column)
dl-PCB-TEQ:	0,0207	pg/column	(crit: 0,05 pg/column)
Sum total PCB:	96,2	pg/column	(crit: 300 pg/column)

Results Recoveries:

PCDD/F	80	to	99	%	(crit: 45	to	130	%)
PCB	30	to	117	%	(crit: 45	to	130	%)

This is to certify that the 209PCB, Lot 20325, passed the required test specifications and is released for sale.

date: 16.06.2025

sign.: 
Thomas Kerkemeier

The company LCTech GmbH is certified according to ISO 9001

Hazards:	<p>NOT FOR HUMAN OR DRUG USE!</p> <p>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.</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>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.</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 Florisil or filters without any effect on the clean-up.</p>

Results:

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

Table 1: PCB recoveries

	[%]	RSD [%]
PCB#1L	97	56
PCB#3L	99	41
PCB#4L	97	15
PCB#8L	101	6
PCB#15L	101	10
PCB#19L	102	6
PCB#28L	117	9
PCB#54L	100	19
PCB#52L	100	10
PCB#70L	93	4
PCB#81L	105	11
PCB#77L	87	4
PCB#104L	101	3
PCB#95LL	97	13
PCB#101L	90	8
PCB#123L	100	4
PCB#118L	99	4
PCB#114L	99	4
PCB#105L	101	6
PCB#126L	117	7
PCB#155L	97	6
PCB#153L	99	5
PCB#138L	97	3
PCB#167L	101	4
PCB#156L	101	0
PCB#157L	102	4
PCB#169L	117	7
PCB#180L	100	8
PCB#170L	100	6
PCB#188L	93	3
PCB#189L	105	4
PCB#202L	87	4
PCB#205L	101	9
PCB#208L	97	19
PCB#209L	90	4

Table 2: PCB blank

	[pg/column]
PCB#1	9,749
PCB#3	4,271
PCB#4	20,957
PCB#8/5	8,4783
PCB#15	10,954
PCB#19	0,1926
PCB#28	1,9832
PCB#54	0,0946
PCB#52/69	0,72
PCB#70	1,0172
PCB#81	0,0999
PCB#77	0,1493
PCB#104	0,1176
PCB#102/93/98/95	0,1596
PCB#101	0,3942
PCB#123	0,0407
PCB#118	0,1999
PCB#114	0,0363
PCB#105	0,0392
PCB#126	0,099
PCB#155	0,1437
PCB#153	0,7604
PCB#138	0,428
PCB#167	0,1501
PCB#156	0,1823
PCB#157	0,3431
PCB#169	0,3551
PCB#180	0,1648
PCB#170	0,0688
PCB#188	0,0687
PCB#189	0,1707
PCB#202	0,0849
PCB#205	0,0727
PCB#208	0,2316
PCB#209	0,0863

Blanks: n = 6

	[pg/column]
PCB-TEQ	
lower bound	0,0207
upper bound	0,0207
Sum DIN	4,5

	[pg/column]
Grade of chlorination	
sum mono	17,6321
sum di	30,8501
sum tri	15,7627
sum tetra	8,7338
sum penta	3,8484
sum hexa	15,0668
sum hepta	2,1186
sum octa	1,5949
sum nona	0,5239
sum deca	0,0863
sum total	96,2176

Blanks:

n = 6

Table 3: PCDD/F recoveries

		[%]
PCDD/F 13C Recoveries [%]	2,3,7,8-TCDF	89
	1,2,3,7,8-PeCDF	92
	2,3,4,7,8-PeCDF	97
	1,2,3,4,7,8-HxCDF	92
	1,2,3,6,7,8-HxCDF	99
	2,3,4,6,7,8-HxCDF	97
	1,2,3,7,8,9-HxCDF	99
	1,2,3,4,6,7,8-HpCDF	86
	1,2,3,4,7,8,9-HpCDF	83
	1,2,3,4,6,7,8,9-OCDF	80
	2,3,7,8-TCDD	82
	1,2,3,7,8-PeCDD	93
	1,2,3,4,7,8-HxCDD	95
	1,2,3,6,7,8-HxCDD	88
	1,2,3,7,8,9-HxCDD	95
	1,2,3,4,6,7,8-HpCDD	93
	1,2,3,4,6,7,8,9-OCDD	89

Table 4: PCDD/F blank

		[pg/column]
native amount	2,3,7,8-TCDF	<0,036
	1,2,3,7,8-PeCDF	0,13
	2,3,4,7,8-PeCDF	<0,081
	1,2,3,4,7,8-HxCDF	0,047
	1,2,3,6,7,8-HxCDF	0,039
	2,3,4,6,7,8-HxCDF	0,08
	1,2,3,7,8,9-HxCDF	0,12
	1,2,3,4,6,7,8-HpCDF	0,15
	1,2,3,4,7,8,9-HpCDF	0,079
	1,2,3,4,6,7,8,9-OCDF	0,22
	2,3,7,8-TCDD	<0,036
	1,2,3,7,8-PeCDD	<0,054
	1,2,3,4,7,8-HxCDD	0,875
	1,2,3,6,7,8-HxCDD	1,41
	1,2,3,7,8,9-HxCDD	0,282
	1,2,3,4,6,7,8-HpCDD	0,25
	1,2,3,4,6,7,8,9-OCDD	3,46

PCDD/F TEQ (2005)	[pg/column]
lower bound	0,38
upper bound	0,38