

# Eppendorf Certificate

## Certificate of Quality

### Eppendorf Plates® – Typical values for trace metals

The values in the table indicate typical values of trace metal concentrations obtained by incubating Eppendorf Plates with concentrated nitric acid for 1 hour (see Materials and Methods).

As the indicated values were determined in a one-time measurement they cannot be guaranteed for every lot of Eppendorf Plates. Rather they give an idea to what extent trace elements can be eluted from Eppendorf Plates.

	Trace metal release [ng/μl]								
	Al	Cd	Cr	Cu	Hg	Mn	Ni	Pb	Zn
<b>Eppendorf Microplates</b>									
96/F	0.029	<0.00002	0.00064	0.0022	<0.001	0.00054	0.00036	0.00059	0.008
96/U	0.028	<0.00002	0.00062	0.0021	<0.001	0.00052	0.00035	0.00058	0.008
96/V	0.028	<0.00002	0.00063	0.0022	<0.001	0.00053	0.00036	0.00059	0.008
384/F	0.048	0.00003	0.00108	0.0037	<0.001	0.00090	0.00061	0.00100	0.014
384/V	0.047	0.00003	0.00105	0.0036	<0.001	0.00088	0.00059	0.00098	0.013
<b>Eppendorf Deepwell Plates</b>									
384/200 μl	0.049000	0.000030	0.001100	0.003800	<0.001	0.000920	0.000620	0.001020	0.014000
96/500 μl	0.027591	0.000017	0.000619	0.002140	<0.001	0.000518	0.000349	0.000574	0.007883
96/1000 μl	0.027297	0.000017	0.000613	0.002117	<0.001	0.000513	0.000345	0.000568	0.007799
96/2000 μl	0.021787	0.000013	0.000489	0.001690	<0.001	0.000409	0.000276	0.000454	0.006225
<b>Protein LoBind® Plates</b>									
384/200 μl	0.008000	<0.00002	0.000110	0.000400	<0.001	0.000140	0.000070	0.000160	0.013000
384/V-PP	0.007668	<0.00002	0.000105	0.000383	<0.001	0.000134	0.000067	0.000153	0.012461
96/500 μl	0.004505	<0.00002	0.000062	0.000225	<0.001	0.000079	0.000039	0.000090	0.007320
96/1000 μl	0.004457	<0.00002	0.000061	0.000223	<0.001	0.000078	0.000039	0.000089	0.007242
<b>DNA LoBind® Plates</b>									
384/200 μl	0.015000	0.000030	0.000130	0.000700	<0.001	0.000042	0.000070	0.000100	0.007000
384/V-PP	0,014378	0,000029	0,000125	0,000671	<0,001	0,000403	0,000067	0,000096	0,006710
96/500 μl	0.008446	0.000017	0.000073	0.000394	<0.001	0.000236	0.000039	0.000056	0.003942
96/1000 μl	0.008356	0.000017	0.000720	0.000390	<0.001	0.000234	0.000039	0.000056	0.003900
96/V-PP	0.008648	<0.00002	0.000075	0.000404	<0.001	0.000242	<0.00005	0.000058	0.004036

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	Trace metal release [ng/μl]								
	Al	Cd	Cr	Cu	Hg	Mn	Ni	Pb	Zn
<b>Eppendorf twin.tec® PCR Plates</b>									
384	0.000379	<0.00002	<0.00005	<0.00010	<0.001	0.000123	<0.00005	<0.00005	<0.0010
384 <i>microbiology</i>	0.002000	<0.00002	<0.00005	<0.00010	<0.001	0.000123	<0.00005	<0.00005	<0.0010
96 semi-skirted	0.001300	<0.00002	<0.00005	<0.00010	<0.001	0.000070	<0.00005	<0.00005	<0.0010
96 skirted	0.001420	<0.00002	<0.00005	<0.00010	<0.001	0.000076	<0.00005	<0.00005	<0.0010
96 unskirted 150 μl	0.001420	<0.00002	<0.00005	<0.00010	<0.001	0.000076	<0.00005	<0.00005	<0.0010
96 unskirted 250 μl	0.001300	<0.00002	<0.00005	<0.00010	<0.001	0.000070	<0.00005	<0.00005	<0.0010
<b>Eppendorf twin.tec® PCR Plates LoBind®</b>									
96 semi- skirted	0.003300	<0.00002	<0.00005	<0.00002	<0.00005	<0.00010	<0.001	<0.00005	<0.00005
96 skirted	0.003605	<0.00002	<0.00005	<0.00002	<0.00005	<0.00010	<0.001	<0.00005	<0.00005

## Materials and Methods

Eppendorf Plates were filled with their nominal volume using concentrated nitric acid (65 %) and incubated for 1 hour at room temperature (20 °C). The eluate was then analyzed by inductively coupled plasma mass spectrometry (ICP-MS). The trace metal concentrations are expressed in ng/μL. The values represent an average of three individually analyzed samples. All values labeled with "<" indicate concentrations below the detection limit of the ICP-MS method. The trace metal release of the remaining Eppendorf Plates were calculated from their surface/volume ratio.

No metal release was observed after 5-10 times rinsing with concentrated nitric acid or after rinsing with 10 % acetic acid or water. All analyses were performed by an independent laboratory accredited according to ISO/IEC 17025:2018-03.

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Joana Tziolis  
Expert Liquid Handling  
LH-Consumables

Monika Schneider  
Head of Global Quality Management &  
Regulatory Affairs

Your local distributor: [www.eppendorf.com/contact](http://www.eppendorf.com/contact)  
Eppendorf AG · Barkhausenweg 1 · 22339 Hamburg · Germany  
E-mail: [eppendorf@eppendorf.com](mailto:eppendorf@eppendorf.com)

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