

# Eppendorf Certificate

## Certificate of Quality

### Pipette tips - Typical values of trace metal release

The values in the table indicate typical values of trace metal concentrations which are obtained after incubating pipette tips 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 pipette tips. Rather, the values indicate the extent of trace elements, that can be eluted from pipette tips.

	Trace metal release [ng / $\mu$ L]								
	Al	Cd	Cr	Cu	Hg	Mn	Ni	Pb	Zn
<b>epT.I.P.S.®</b>									
0.1-10 $\mu$ L*	0,0038	<0,00002	<0,00005	<0,0001	<0,001	0,00027	<0,00005	<0,00005	<0,001
0.1-20 $\mu$ L*	0,0034	<0,00002	<0,00005	<0,0001	<0,001	0,00025	<0,00005	<0,00005	<0,001
0.5-20 $\mu$ L*	0,0032	<0,00002	<0,00005	<0,0001	<0,001	0,00023	<0,00005	<0,00005	<0,001
2-200 $\mu$ L*	0,0014	<0,00002	<0,00005	<0,0001	<0,001	0,00010	<0,00005	<0,00005	<0,001
20-300 $\mu$ L	0,0011	<0,00002	<0,00005	<0,0001	<0,001	0,00008	<0,00005	<0,00005	<0,001
50-1000 $\mu$ L	<0,001	<0,00002	<0,00005	<0,0001	<0,001	<0,00005	<0,00005	<0,00005	<0,001
1250 $\mu$ L*	<0,001	<0,00002	<0,00005	<0,0001	<0,001	<0,00005	<0,00005	<0,00005	<0,001
2.5 mL*	<0,001	<0,00002	<0,00005	<0,0001	<0,001	<0,00005	<0,00005	<0,00005	<0,001
5 mL*	<0,001	<0,00002	<0,00005	<0,0001	<0,001	<0,00005	<0,00005	<0,00005	<0,001
10 mL*	<0,001	<0,00002	<0,00005	<0,0001	<0,001	<0,00005	<0,00005	<0,00005	<0,001
10 mL long *	<0,001	<0,00002	<0,00005	<0,0001	<0,001	<0,00005	<0,00005	<0,00005	<0,001
<b>Eppendorf Varitips®</b>									
P	<0,0010	<0,00002	<0,00005	<0,00010	<0,0010	<0,00005	<0,00005	<0,00005	<0,0010
S	<0,0010	<0,00002	<0,00005	0,00014	<0,0010	0,00061	<0,00005	0,00005	<0,0010
<b>GELoader®</b>									
0.5 - 20 $\mu$ L	<0,0010	<0,00002	<0,00005	<0,00010	<0,0010	<0,00005	<0,00005	<0,00005	<0,0010
<b>Microloader™</b>									
0.5 - 20 $\mu$ L	<0,0010	<0,00002	<0,00005	<0,00010	<0,0010	<0,00005	<0,00005	<0,00005	<0,0010

# Eppendorf Certificate

## Materials and methods:

The pipette tips were filled with their nominal volume with 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 are the average of three individually analyzed samples. The trace metal release of all other epT.I.P.S.® indexed with “\*” sizes were calculated from their surface/volume ratio. All values labeled with “<” indicate concentrations below the detection limit of the ICP-MS method.

No metal release was observed after 5-10 rinsings with concentrated nitric acid or after rinsing with 10 % acetic acid or water.

All analyses were performed by GALAB Laboratories, Geesthacht, Germany accredited to DIN EN ISO/IEC 17025.

January, 2020

Page 2 of 2

0015 033.512-00



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)

ISO 9001  
Certified

ISO 13485  
Certified

ISO 14001  
Certified

GALAB® is a registered trademark of Galab Nordkap Holding GmbH, Germany. Eppendorf®, the Eppendorf Brand Design, GELoader®, Eppendorf Varitips® and epT.I.P.S.® are registered trademarks of Eppendorf AG, Germany. Microloader™ is a trademark of Eppendorf AG, Germany. All rights reserved, incl. graphics and images. Copyright ©2020 by Eppendorf AG.

[www.eppendorf.com](http://www.eppendorf.com)