

## Certificate of Purity

### Trace metals

Table 1. presents typical values of trace metals extracted from Sartorius Optifit, SafetySpace and Low Retention pipette tips by concentrated nitric acid. Each tip type was tested using tips from at least three batches of Sartorius Pipette Tips. The values are the average values of individually analyzed samples.

The pipette tips are tested by rinsing the pipette tip 10 times with its nominal volume of concentrated nitric acid. The results were analyzed with ICP-MS (Inductively Coupled Plasma Mass spectrometry).

Table 1. Trace metal concentrations in ppb ( $\mu\text{g/l}$ )

Tip volume	Al	Cr	Mn	Ni	Cu	Zn	Cd	Hg	Pb
0.1-10 $\mu\text{l}$	<0.256	<0.673	<0.033	<0.970	<0.106	<0.065	<0.013	<0.129	<0.002
0.1-10 $\mu\text{l}$ , Ext	<0.256	<0.673	<0.033	<0.970	<0.106	<0.065	<0.013	<0.129	<0.002
0.5-200 $\mu\text{l}$	<0.256	<0.673	<0.033	<0.970	<0.106	3.345	<0.013	<0.129	0.006
5-350 $\mu\text{l}$	<0.256	<0.673	<0.033	<0.970	<0.106	4.678	<0.013	<0.129	0.010
10-1000 $\mu\text{l}$	0.409	<0.673	<0.033	<0.970	0.294	1.387	<0.013	<0.129	0.014
50-1,200 $\mu\text{l}$	0.377	<0.673	0.048	<0.970	0.529	2.139	0.020	<0.129	0.007
50-1,200 $\mu\text{l}$ , Ext	<0.256	<0.673	<0.033	<0.970	<0.106	1.179	<0.013	<0.129	0.036
100-5,000 $\mu\text{l}$	<0.256	<0.673	<0.033	<0.970	<0.106	1.145	<0.013	<0.129	<0.002
1-10 ml	0.364	<0.673	<0.033	<0.970	0.209	22.276	<0.013	<0.129	0.021
<b>Limit of detection</b>	<b>0.256</b>	<b>0.673</b>	<b>0.033</b>	<b>0.970</b>	<b>0.106</b>	<b>0.065</b>	<b>0.013</b>	<b>0.129</b>	<b>0.002</b>

These results are based on one-time analysis and are for guidance to the probable levels of trace metals in Sartorius tips. Analysis was performed by Geological Survey of Finland.

Signed:  Date: 20. August 2020

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