CERTIFICATE OF ANALYSIS

SPS-WW2 Batch 115

Reference Material for Measurement of Elements in Wastewaters

This Reference Material is intended for daily use in conjunction with measurement of elements in wastewaters. The water solution contains 13 elements with concentrations traceable to ultra pure metals or stoichiometrically well-defined substances. The certified values are based on a gravimetric procedure, i.e. weight per volume composition of the primary reference material dissolved in high purity sub-distilled acids. The primary reference materials used in the production have been traced to Standard Reference Materials issued by National Institute of Standards and Technology (USA) by chemical measurements applying inductively coupled plasma atomic emission spectrometry and/or inductively coupled plasma mass spectrometry.

Stability: The certificate is valid for 3 years from the production date (December 13, 2017) provided that the sample solution is kept tightly capped and stored under normal laboratory conditions (less than 30 °C). The solution contains 0.5% nitric acid (W/V).

Element	Concentration in ng/ml (20 °C) [a]	Traceable to NIST SRM
Al	10000 ± 50	3101a
As	500 ± 3	3103
Cd	100.0 ± 0.5	3108
Co	300 ± 2	3113
Cr	1000 ± 5	3112a
Cu	2000 ± 10	3114
Fe	5000 ± 25	3126
Mn	2000 ± 10	3132
Ni	5000 ± 25	3136
P	5000 ± 25	3139
Pb	500 ± 3	3128
V	500 ± 3	3165
Zn	3000 ± 15	3168a

[a] The uncertainties (half width of the 95 % confidence intervals) listed for the individual elements is based on scientific judgement and represents an estimate of the combined effects of any error, attributed to gravimetric and volumetric procedures, purity of the source material and possible contamination throughout the production steps.

Signature by:

Knut Andersen
Certifying Officer

Oslo, December 13, 2017
Certificate revision 1.0

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