

CERTIFICATE OF ANALYSIS

SPS-WW1 Batch 114

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 (September 10, 2013) 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	2000 ± 10	3101a
As	100.0 ± 0.5	3103
Cd	20.0 ± 0.1	3108
Co	60.0 ± 0.3	3113
Cr	200 ± 1	3112a
Cu	400 ± 2	3114
Fe	1000 ± 5	3126
Mn	400 ± 2	3132
Ni	1000 ± 5	3136
P	1000 ± 5	3139
Pb	100.0 ± 0.5	3128
V	100.0 ± 0.5	3165
Zn	600 ± 6	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, September 11, 2013
Certificate revision 1.0