

ICP – Mass Spectrometry

NexION® 300X ICP-MS



The NexION 300X ICP-MS is available in two configurations: single and dual channel. The following performance can be measured under a single set of optimized conditions for each mode.

Detection limits

Based on three times the standard deviation of the blank using three-second integration time and peak hopping at 1-point per mass.

Element	ng/L (ppt)
⁹ Be	< 1
⁵⁹ Co	< 1
¹¹⁵ In	< 0.5
²³⁸ U	< 0.5

Sensitivity

Element	M cps/mg/L
⁹ Be	> 3
²⁴ Mg	> 20
¹¹⁵ In	> 50
²³⁸ U	> 40

Oxide and doubly-charged species

Measured without the use of a desolvation device such as a chilled spray chamber and under identical operating conditions used to achieve sensitivity and detection-limit specifications.

CeO ⁺ /Ce ⁺	< 0.025
Ce ⁺⁺ /Ce ⁺	< 0.03

Background signal

Mass 220	< 1 cps
----------	---------

Short-term precision

Defined as the relative standard deviation (% RSD) for a 1-10 µg/L multielement solution, automatically cycling between cell and non-cell modes, using a 3-second integration time, without internal standardization.
< 3% RSD

Long-term stability

Relative stability after a one-hour warm-up period. Defined as the relative standard deviation of the mean signal for a 1-10 µg/L multielement solution, automatically cycling between cell and non-cell modes, measured once every 10 minutes, without internal standardization.

< 4% RSD over 4 hours

Isotope-ratio precision

Defined for the isotope ratio of $^{107}\text{Ag}/^{109}\text{Ag}$. Obtained using single-point peak hopping.

< 0.08*% RSD (*or within a factor of two of the counting statistics limit)

Mass calibration stability

Measured using a 1 µg/L multielement solution containing ^7Li , ^{24}Mg , ^{115}In and ^{238}U . Defined in terms of the shift in spectral position corresponding to maximum spectral peak intensity for each element, obtained without the use of multiple-point, peak-searching algorithms.

< 0.05 amu over 8 hours of continuous operation

Quadrupole peak hop (slew) speed

Defined as the maximum rate at which the quadrupole can change from the minimum mass to the maximum mass without affecting the precision of the analytical measurement.

1.6M amu/sec

Quadrupole scan speed

Defined as the maximum rate at which the quadrupole can be scanned while acquiring continuous spectral data at every mass from the minimum to the maximum mass of the instrument (1-285 amu).

5000 amu/sec

Abundance sensitivity

Defined as the intensity of a given isotope at spectral peak maximum, relative to the intensity of that isotope at 1 amu lower and at 1 amu higher than the mass position corresponding to peak maximum.

Measured at ^{23}Na :

Better than 1.0×10^{-6} at low mass side of peak

Better than 1.0×10^{-7} at high mass side of peak

Detector linear range

The SimulScan™ detection system operates from < 0.1 cps to > 10^9 cps. This provides over 10 orders of magnitude of linear dynamic range in a single continuous scan.

Transient data acquisition speed

> 3000 temporal data points/sec maximum

PerkinElmer, Inc.
940 Winter Street
Waltham, MA 02451 USA
P: (800) 762-4000 or
(+1) 203-925-4602
www.perkinelmer.com



For a complete listing of our global offices, visit www.perkinelmer.com/ContactUs

Copyright ©2010-2012, PerkinElmer, Inc. All rights reserved. PerkinElmer® is a registered trademark of PerkinElmer, Inc. All other trademarks are the property of their respective owners. PerkinElmer reserves the right to change this document at any time without notice and disclaims liability for editorial, pictorial or typographical errors.

009203B_02