

ELAN<sup>®</sup> 9000 ICP-MS**Guaranteed shipping specifications**

The following performance can be measured under a single set of optimized conditions.

**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)
<sup>9</sup> Be	< 9
<sup>59</sup> Co	< 2
<sup>115</sup> In	< 0.5
<sup>238</sup> U	< 0.5

**Sensitivity**

Element	M cps/mg/L
<sup>24</sup> Mg	> 10
<sup>115</sup> In	> 40
<sup>238</sup> U	> 30

**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 <sup>+</sup> /Ce <sup>+</sup>	< 3%
Ba <sup>+2</sup> /Ba <sup>+</sup>	< 3%

**Background noise** Stability of the background defined as the standard deviation of the background signal.

Mass 220	< 5 cps
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**Short-term precision** Defined as the coefficient of variation (% RSD) for a 10-μg/L multielement solution, measuring <sup>24</sup>Mg, <sup>63</sup>Cu, <sup>114</sup>Cd and <sup>208</sup>Pb, using a 3-second integration time, without an internal standard.

< 3% RSD



<b>Long-term stability</b>	Relative stability after a one-hour warm-up period. Defined as the standard deviation of the mean signal for <sup>24</sup> Mg, <sup>63</sup> Cu, <sup>114</sup> Cd and <sup>208</sup> Pb in a 10-µg/L multielement solution, measured once every 10 minutes, without internal standardization. < 4% RSD over 4 hours
<b>Isotope-ratio precision</b>	Defined for the isotope ratio of <sup>107</sup> Ag/ <sup>109</sup> Ag using a 50-µg/L solution. Obtained using single-point peak hopping. < 0.2% RSD
<b>Mass calibration stability</b>	Measured using a 10-µg/L multielement solution containing <sup>24</sup> Mg, <sup>103</sup> Rh and <sup>208</sup> Pb. 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
<b>Peak-hopping settling time</b>	Defined as the time taken to settle electronics after peak hopping to a discrete mass position. Normal Pulse Counting Mode: 200 µsec; Extended Dynamic Range Mode: 3 msec
<b>Quadrupole scan speed</b>	Defined as the maximum rate at which the quadrupole can be scanned. 2400 amu/sec
<b>Abundance sensitivity</b>	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.  <b>Measured at <sup>23</sup>Na:</b> Better than 1.0 x 10 <sup>6</sup> at low mass side of peak Better than 1.0 x 10 <sup>7</sup> at high mass side of peak
<b>Detector linear range</b>	The SimulScan™ detection system operates from 1 cps to 10 <sup>9</sup> cps. This provides over 8 orders of magnitude of linear dynamic range in a single continuous scan.
<b>Sample washout</b>	Measured after introduction of a 1% nitric acid solution immediately following continuous aspiration of 100 µg/L Rh for one minute: Signal for <sup>103</sup> Rh drops by at least three orders of magnitude in less than 30 seconds.
<b>Regulatory and safety compliance</b>	The ELAN® 9000 carries the <b>CE</b> Mark and fully meets the regulatory and safety standards below: <ul style="list-style-type: none"> <li>• CAN CSA C22.2 No. 1010-1; Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use</li> <li>• UL Std. No. 3101-1; Electrical Equipment for Laboratory Use</li> <li>• FCC Part 15, Class A</li> <li>• European Low Voltage Directive 73/23/EEC (LVD) and its standards EN61010-1 and EN61010-2-061</li> <li>• European EMC Directive 89/336/EEC and 92/31/EEC and its standards EN55011:1998 (Class A) and EN61326-1:1997</li> </ul>
<b>Dimensions and installation requirements</b>	For a detailed description of instrument dimensions, services, power and environmental requirements, please refer to "Preparing Your Laboratory for the ELAN® 9000 ICP Mass Spectrometer".
<b>Dimensions</b>	99 cm x 117 cm x 73 cm (W x H x D), 295 kg  <b>Note:</b> Specifications are valid for ELAN® 9000 instruments manufactured after May 2002.

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