

## iCAP 6300 ICP Spectrometer (Acquired under CARE 2007-08, PI- Dr. Tarun Gupta, CE)

The use of Inductively Coupled Plasma source (ICP) and Atomic Absorption (AA) are the accepted and most powerful techniques for the analysis of and quantification of trace elements in both solid and liquid samples. Applications range from routine environmental analyses to the materials industry, geological applications to clinical research and from the food industry to the semiconductor industry.

The iCAP 6300-Duo can simultaneously detect 66 Elements with detection limits less than 1 µg/L. The plasma is easier to ignite and can operate with a much wider range of sample types. The Duo instrument provides flexibility, with extreme detection limits achievable in axial mode and reduced interference in Radial mode.

### Technical Specification

Spectrometer	Echelle type 52.91 grooves/mm ruled grating 383 mm effective focal length 9.5° UV fused silica cross dispersion prism
Wavelength range	166 - 847 nm
Spectral bandpass	7 pm at 200 nm
Detector	High performance CID86 chip
RF source	27.12 MHz solid state 750 - 1500 watts output power (Duo restricted to 1350 watts)
Sample pump	3-channel, 12 roller peristaltic. Speed 0 - 125 rpm
Plasma gas	Fixed 12 L/min, argon
Nebulizer gas	Pressure control, from 0 - 0.4 MPd
Auxiliary gas	4 fixed flows, 0, 0.5, 1.0 and 1.5 L/min
Standard sampling kit	Concentric glass nebulizer Glass cyclone spray chamber Semi-demountable torch 1.5 mm bore quartz injector (Radial version) 2 mm bore quartz injector (Duo version)
Dimensions	840 W x 750 D x 590 H



Detection Limit range in µg/L	Number of elements	Elements
≤ 0.01	10	Mg, Ca, Sr, Be, Li, Sc, Ba, Eu, Yb, Lu
> 0.01 and ≤ 0.1	17	Y, Mn, Cd, Al, Er, Zn, Dy, Na, Ti, Ho, Tm, Zr, La, Hg, Cr, Ag, K
> 0.1 and ≤ 1	39	Mo, Fe, V, Ni, Re, Co, Tb, Nd, Gd, B, Sm, Nb, Cu, W, Au, Hf, Hf, Ru, Ce, Rb, Pr, Sn, Tl, Pd, P, Pb, Th, Ga, Te, Ir, Os, Pt, Ta, Se, Rh, Sb, As, U, Si
> 1	6	Bi, Ge, S, I, In, Cs