

Abstract Submitted
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Electron densities and temperatures in a Cl₂/Ar ICP¹ JEAN-PAUL BOOTH, LPP-CNRS, RODOLPHE SAROT, LPP, EMILIE DESPIAU, PASCAL CHABERT, LPP, LINA GATILOVA, LPN, SOPHIE BOUCHOULE, LPN-CNRS — Electron densities were measured in an industrial inductively-coupled plasma etch chamber in Cl₂/Ar mixtures as a function of composition (0-100% Cl₂), pressure (0.5-10 mTorr) and RF power (100-800W), using both a microwave hairpin resonator (MHR) and a Langmuir probe (LP). The LP results closely tracked the MHR results but were lower by $\approx 20\%$. In pure Cl₂ the electron density increased linearly with RF power, and decreased with pressure. The electron temperature (LP) was approximately independent of RF power, and decreased with pressure. The results were compared to fluid simulations based on the HPEM (Hybrid Plasma Equipment Model) code of Mark Kushner. Excellent agreement was obtained for absolute values and trends in electron density and temperature in pure Cl₂, whereas the density was somewhat underestimated in pure Ar.

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