

Abstract Submitted
for the GEC16 Meeting of
The American Physical Society

Ionization Cross Sections for Electron Collision from PCl_5 .
SATYENDRA PAL, MMH College, Ghaziabad (UP) — Phosphorous pentachloride PCl_5 and its free radicals are widely used in plasma, plasma-assisted etching and deposition of phosphorous layers in the fabrication of microelectronic components and other high technological devices. Keeping the wide interest of the molecule, in the present work, we report the calculations for differential cross sections as a function of secondary and or ejected electron energy in the ionization of PCl_5 by electron collision corresponding into the production of various cations singly charged ions through direct and dissociative ionization processes at a fixed incident electron energy of 100 eV. The modified Jain-Khare semi-empirical formalism [1-2] based on oscillator strength has been employed for evaluation of cross sections. The corresponding derived partial integral cross sections in terms of the partial ionization cross sections for these cations in the energy range varying from ionization threshold to 1000 eV, revealed a reasonably good agreement with the available data. In addition to the differential and integral ionization cross sections, we have also calculated the ionization rate coefficients using the evaluated partial ionization cross sections and the Maxwell-Boltzmann distribution as a function of electron energy.

Satyendra Pal
MMH College, Ghaziabad (UP)

Date submitted: 09 Jun 2016

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