

Abstract Submitted
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Impurities Associated with ICRF on C-Mod¹ S.J. WUKITCH, H. BARNARD, D. BRUNNER, M.L. REINKE, G. WRIGHT, M. GARRETT, Y. LIN, B. LIPSCHULTZ, B. LABOMBARD, D.G. WHYTE, MIT Plasma Science and Fusion Center, AND ALCATOR C-MOD TEAM — In C-Mod experiments, a boron (B) film is applied to minimize the core molybdenum (Mo) content associated with ion cyclotron range of frequency heating; however, experiments suggested a high B erosion rate. A $\sim 100\ \mu\text{m}$ boron film has been sprayed onto the Mo tile surfaces with the expectation that 20-30 μm of the B would be locally eroded during a campaign. Following the campaign, the B coating was found not to be significantly eroded except in locations where peeling and melting occurred. The peeling appears to be the result of poor bonding and the melt damage was localized to the outboard midplane of the plasma limiters. Thus, the high erosion rate reflects degradation of localized spots rather than sputtering of large surface areas. Conditions favoring melting limiter surfaces are discharges with low density and high ICRF power. To cause surface melting, the energy delivered to the tile is a small fraction of the injected energy ($<1\%$); however, the precise mechanism responsible is yet to be identified.

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