

Abstract Submitted  
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**Mixed plasma species effects on Tungsten**<sup>1</sup> MATT BALDWIN, RUSS DOERNER, DAISUKE NISHIJIMA, University of California San Diego, YOSHIO UEDA, Graduate School of Engineering, Osaka University, Japan — The diverted reactor exhaust in confinement machines like ITER and DEMO will be intense-mixed plasmas of fusion (D, T, He) and wall species (Be, C, W, in ITER and W in DEMO), characterized by tremendous heat and particle fluxes. In both devices, the divertor walls are to be exposed to such plasma and must operate at high temperature for long durations. Tungsten, with its high-melting point and low-sputtering yield is currently viewed as the leading choice for divertor-wall material in this next generation class of fusion devices, and is supported by an enormous amount of work that has been done to examine its performance in hydrogen isotope plasmas. However, studies of the more realistic scenario, involving mixed species interactions, are considerably less. Current experiments on the PISCES-B device are focused on these issues. The formation of Be-W alloys, He induced nanoscopic morphology, and blistering, as well as mitigation influences on these effects caused by Be and C layer formation have all been observed. These results and the corresponding implications for ITER and DEMO will be presented.

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