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Abstract for AVS. Due Wed. May 5. **Needs R&A- ASAP!!!**

Submit to SS1 Surface Science Division

Douglas Chinn and Michael Dugger

Samples of grade five 6Al4V titanium alloy were coated with Tiodize and Canadize fluoropolymer anodizations and compared for use in space applications. Neither coating demonstrates significant outgassing. The coatings show very similar elemental analysis, except for the presence of lead in the Canadize coating, which may account for its lower surface friction in humid environments. Surface roughness has been compared by SEM, contact profilometry, optical profilometry, power spectral density and bidirectional scattering distribution function (BSDF). The Tiodize film is slightly smoother by all measurement methods, but the Canadize film shows slightly less scatter at all angles of incidence. Both films exhibited initial friction coefficients of 0.2 to 0.4, increasing to 0.4 to 0.8 after 1000 cycles of sliding due to wear of the coating and ball. The coatings are very similar and should behave identically in most applications.