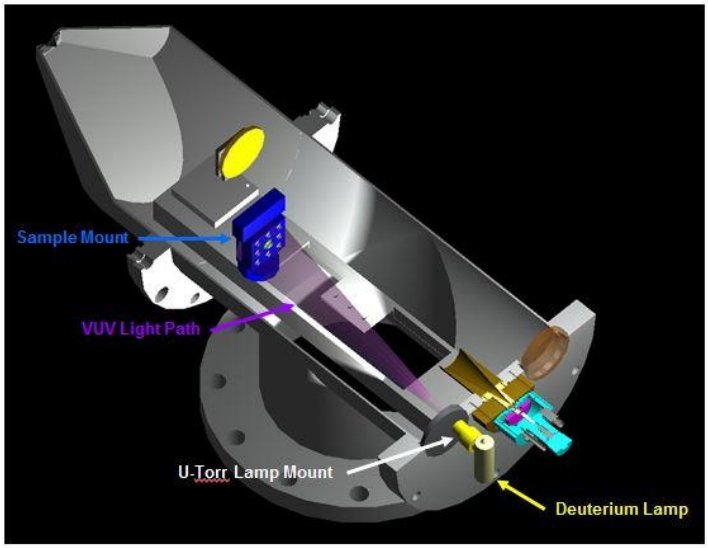
Vacuum Ultraviolet Light Exposure of Windform SP and Windform LX 3.0

VUV Radiation: Exposure set-up

- Samples of Windform SP and Windform LX 3.0 were exposed to vacuum ultraviolet (VUV) radiation.



- Samples of Windform SP and Windform LX 3.0 were exposed to ~8 solar equivalents in LEO, with a wavelength range of 115-200 nm

- VUV radiation from a 30 W Hamamatsu L7292 deuterium lamp for 36 continuous hours.

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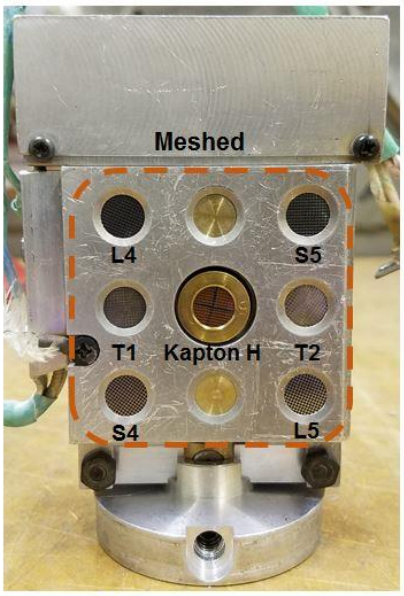
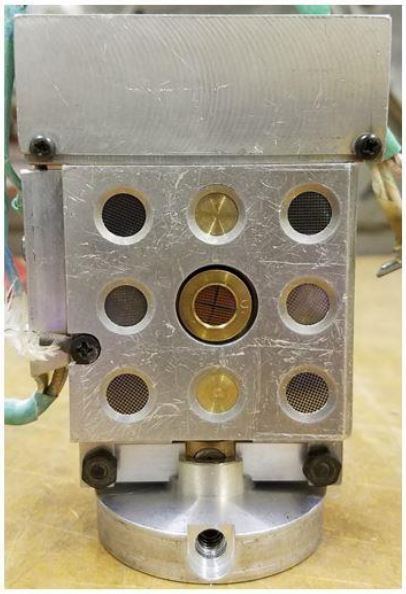
Sample characterization before/after VUV light exposure:



Before Exposure

In addition to a Kapton H reference, FEP-Teflon was also exposed, as it is known to be sensitive to VUV radiation (denoted T1 and T2 in "Before Exposure" image).

No obvious difference between before and after exposure



After Exposure

Erosion Depth:

15 step heights were measured with a Dektak^3 Stylus Profilometer and averaged.

	Erosion Depth (µm)	Standard Deviation (µm)
Kapton H	Not Observed	--
T1	0.18	0.06
T2	0.17	0.04
L4	Not Observed	--
L5	Not Observed	--
S4	Not Observed	--
S5	Not Observed	--

Erosion depths were shallower than the overall roughness of Windform LX 3.0 and SP. Kapton H did not exhibit obvious erosion.

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Conclusion:

Windform SP and LX 3.0 samples did not show degradation with VUV testing.
There was clearly no measurable erosion with the profilometer, and any microscopic effects that might have been measurable by SEM were within the inherent surface roughness of the material and were therefore not observable by this technique.

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