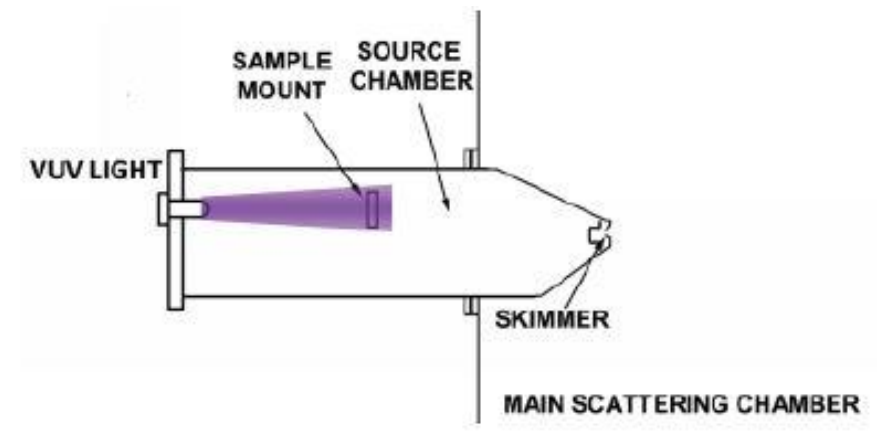




Vacuum ultraviolet light exposure on XT and LX samples

Detailed Information on VUV light Source and Experimental details

- For VUV light irradiation, a 30-W deuterium (D2) lamp (Hamamatsu model L7292) was used. This lamp provided continuous VUV radiation mainly in the wavelength range of 115-200 nm.
- The distance from the D2 lamp to the samples was 40 cm.
- At this distance, the samples experienced an irradiance of 8 solar equivalents (or “suns”) in LEO, in the wavelength range 115-200 nm.
- Samples were exposed to continuous VUV light for 36 hours.



CRP TECHNOLOGY S.r.l.

Sede Legale e Amministrativa/Headquarters and Administration Office

Via Cesare Della Chiesa 150/C - 41126 Modena

Tel./Phone +39-059-330544/821135/826025

Fax +39-059-822071/381148

C.F./ P.IVA/Registro Imprese Modena IT03344960368 (VAT number)

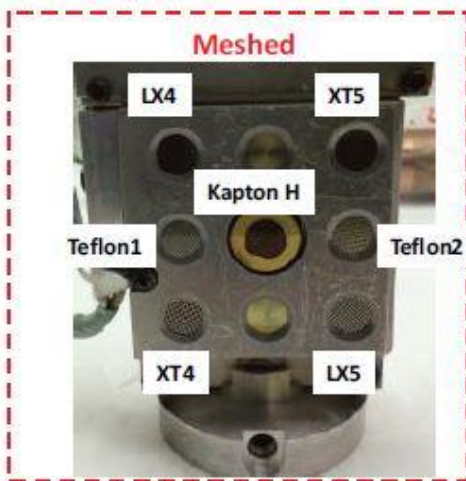
Capitale sociale Euro 80.000 i.v.



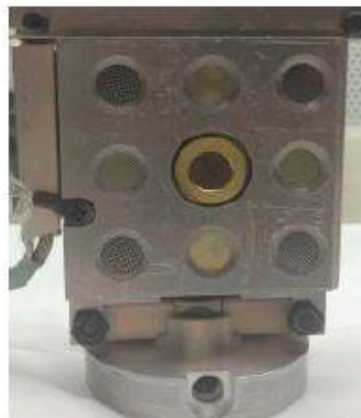
Sample characterization before/after VUV light exposure:

Photos

Before exposure:



After exposure:



There are no visible erosion patterns on Kapton H or FEP-Teflon samples.
There are visible erosion patterns on both XT and LX samples, but not clearly.

Sample characterization before/after VUV light exposure:

Profilometry of meshed FEP-Teflon samples for reference. (FEP-Teflon is known to be somewhat sensitive to VUV light in LEO.)

	Average depth (μm)	Standard deviation (μm)
Teflon1	0.22	0.03
Teflon2	0.21	0.03

- The erosion depths of both XT and LX samples are much smaller than their rms roughness. Thus, we could not measure any erosion.
- There is no obvious erosion of Kapton H.
- Teflon is more sensitive to VUV compared to other samples, and has obvious erosion.
- We conclude that the VUV-induced erosion of the XT and LX samples is negligible.

CRP TECHNOLOGY S.r.l.

Sede Legale e Amministrativa/Headquarters and Administration Office
Via Cesare Della Chiesa 150/C - 41126 Modena
Tel./Phone +39-059-330544/821135/826025
Fax +39-059-822071/381148
C.F./ P.IVA/Registro Imprese Modena IT03344960368 (VAT number)
Capitale sociale Euro 80.000 i.v.