

FR-Liquid: In-situ Monitoring and Characterization of coatings immersed on liquids

FR-Liquid is an accessory for the real time monitoring, e.g. swelling or dissolution, of thickness and optical constants (n & k) of thin/thick films during processing in liquids (e.g. water, organic solvents).

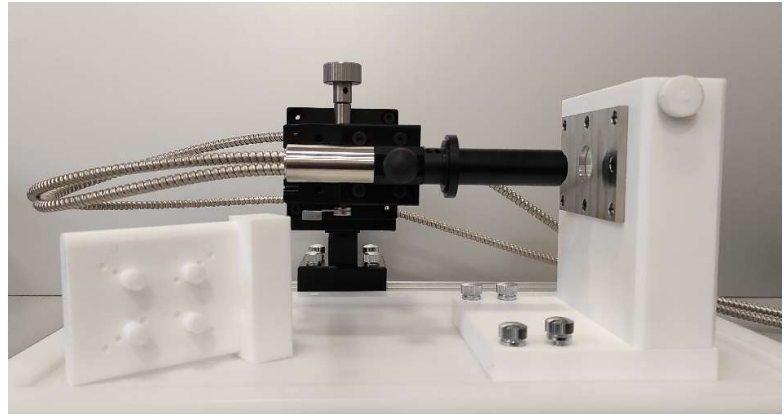
FR-Liquid can be used with any FR-pRo tool and at any spectral range thanks to its quartz optical port.

Applications

- In-Situ Measurements
- Materials Characterization
- Polymers/Photoresists Characterization
- HardCoats
- Semiconductor
- Non Metal films

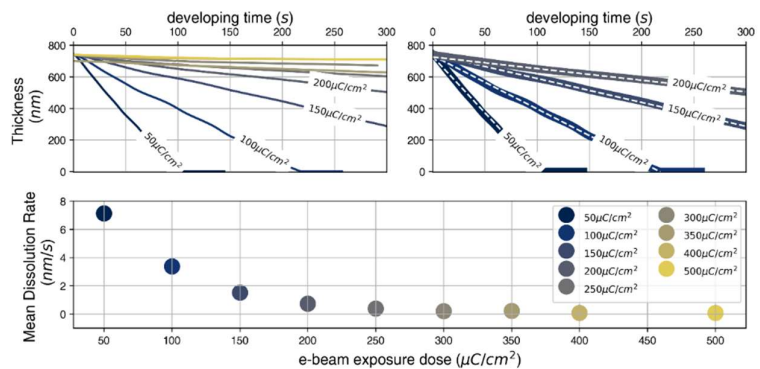
Features

- Teflon cell: 110x35x130 mm
- Optical window: 18 mm (diameter)
- Liquid capacity: 30 - 40 ml
- Sample holder for samples of any shape in the 30x45 mm range.



FR-Liquid consists of a PTFE (Teflon) cell and a holder to accommodate the sample under test. PTFE, due to its properties (hydrophobic, chemical and thermal resistant) make suitable the use of FR-Liquid for a wide range of liquids. Optical measurements with the FR-Basic tool are possible due to the optical window design on the cell, which establishes the non-contact between the optical probe and the liquid.

FR-Liquid supports also the use of external micropumps, for the circulation of the liquids.



Thickness evolution during the development step corresponding to all selected exposure doses, and (top-right) only to high development rates. (bottom) The mean dissolution rates expressed as a function of e-beam exposure dose.