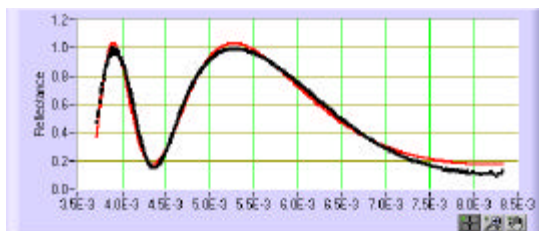
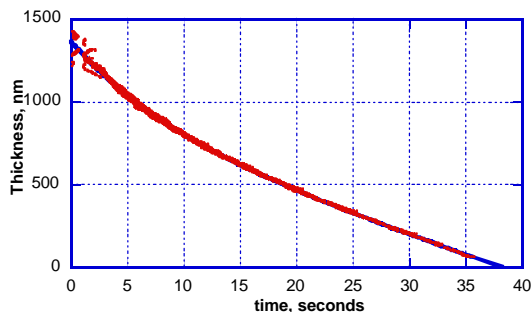


An easy to follow screen allows for data acquisition (left) and processing (right)

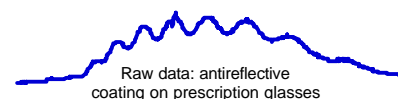


Data can be analyzed from the peak positions (above) or from shape analysis (left), giving for the same film 395 and 401 nm, respectively. Shape analysis allows study of films as thin as 70 nm, while peak position analysis is preferred for thicker films.



Dissolution analysis allows the key parameters to be automatically evaluated. For example for a Shipley 1813 exposed resist (left) we obtain:

Time to clear	38.0 sec
Thickness	1342 nm
Average rate	35.26 nm/s
Initial rate	76.70 nm/s
Final rate	23.18 nm/s



Raw data: antireflective coating on prescription glasses

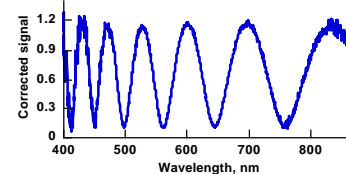
Luzchem
Shedding light on new ideas

Thin film analyzer (TFA-11)

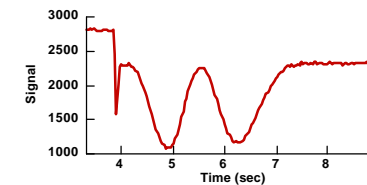
Measurement of both film thickness and dissolution rates

Luzchem's TFA-11 instrument combines the power of interferometric measurements of dry and wet thin film thickness, with a versatile, cost effective dissolution rate monitor. Among the types of samples tested with the TFA-11 are resists, antireflective coatings, UV protecting films (e.g., windows and windshields), and paint coatings on various surfaces.. Luzchem will be pleased to test your coatings prior to a purchase commitment.

Luzchem's unique design (*Patent pending*) requires only ca. 1 mL of developer, rather than the large volumes frequently needed. Multiple measurements are possible in a single wafer; typically 4 in a 3 inch wafer and over 30 in an 8 inch wafer. Select any wavelength between 400 and 850 nm, or use the multiwavelength analysis available in our software package. If you choose to develop your own analysis software, we provide ASCII files of all data.

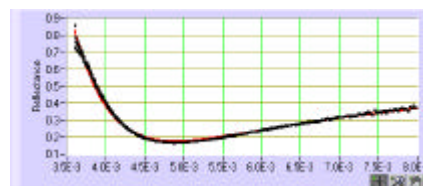


Interferogram obtained on a dry film of a commercial resist on silicon.



Dissolution of exposed 0.35 μm Novolak resist on a silicon wafer.

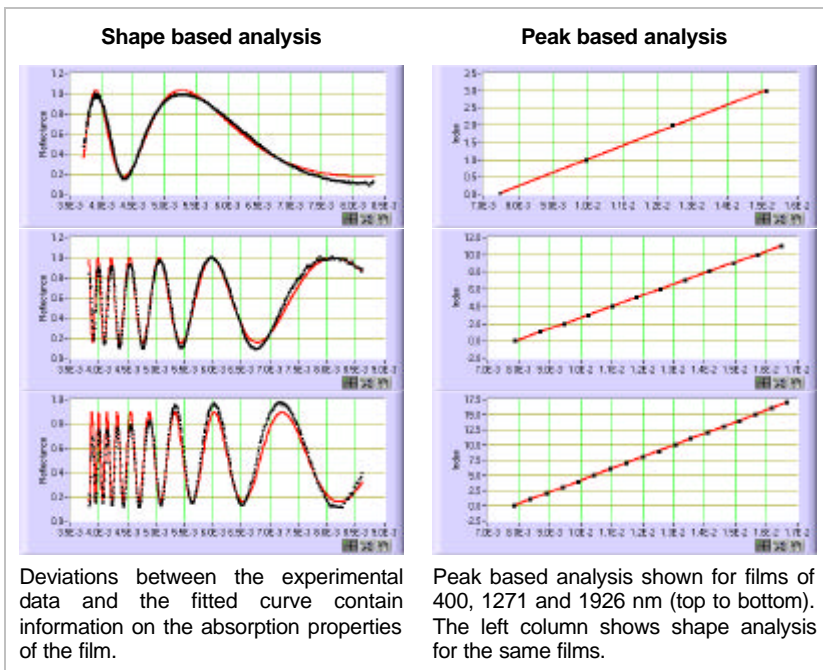
The TFA -11 can operate readily on typical silicon wafers, on transparent or fully reflective substrates, and its granite base provides remarkable mechanical and thermal stability. Its USB interface combines efficient data acquisition with simplicity. From about 70 nm to over 25 μm, the TFA -11 offers cost effective versatility, while minimizing developer usage. If you just need film thickness measurements choose our unit TFA-10, .



Even when the film is too thin for peak position analysis the TFA-11 allows accurate thickness determination by analysis of the reflection curve shape. Fitting shown for a 98 nm film

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Exposure chambers for all applications

LUZCHEM offers a wide range of UV-Visible exposure tools for controlled irradiation of a wide range of materials. Top irradiation is ideal for solids, paper and some biological samples, while side irradiation is usually preferred for liquids. Different wavelength ranges in the UV and visible from broadband fluorescent lamps are available.

General characteristics:

- Nearly 1 cubic foot of working space
- Safe exhaust. Luzchem photoreactors do not require fumehood space
- Bulkhead gas inlet standard in all units
- Detailed spectral information on our UVC, UVB, UVA and visible lamps readily available
- Chamber temperature never exceeds room temperature by more than 4 °C
- Adequate UV-protecting safety goggles supplied

Many additional options are available:

- Digital timer automatically shuts down equipment
- Recessed magnetic stirrer is ideal for organic synthesis without interfering with working space
- Portable or built-in carousels (merry-go-round) for quantum yield studies in solution
- Portable or built-in turntables allow controlled exposure of solid samples, paper, films and Petri dishes
- A calibrated power meter helps replicate, reproduce and report exposure conditions
- Temperature control available as special option
- ...and if you are interested in drug photostability our model ICH2 unit is fully compliant with ICH guidelines under exposure option 2. It comes equipped with everything you need for drug photostability work

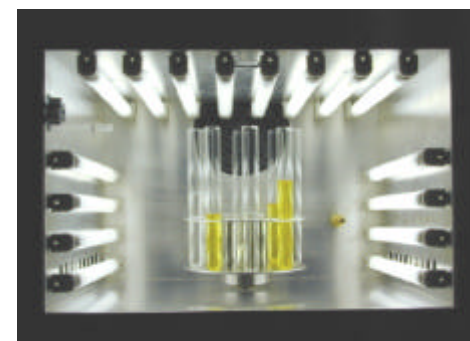
The TFA-11 can handle wafers up to 8 inches in diameter. The solid granite sample table offers exceptional mechanical and thermal stability. The precision machined Delrin head provides a convenient housing for the sensor system, with good chemical stability. The light source is a quartz halogen lamp, coupled with a flexible fiber that serves for light delivery, while restricting the wavelengths to > 390 nm, thus minimizing film exposure during analysis.

The Ocean Optics 2048-diode array spectrometer has outstanding spectral resolution and can capture up to 10 full spectra per second. The USB interface permits installation of the hardware without opening the computer, or even switching it off.

The graphic software interface requires only minutes to learn the basic operating commands, while retaining the power for sophisticated data analysis. If this is not sufficient, the raw or processed data can be exported in ASCII format (tab delimited text).

Pre-bake and post-bake

Environmental chamber and disc heaters, for elevated temperature curing (180°C) of solid samples as large as 8.5" diam. Also suitable for biological applications. Capable of working under inert atmospheres, it fits all Luzchem photoreactors. Open and closed models available



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