

# Applications

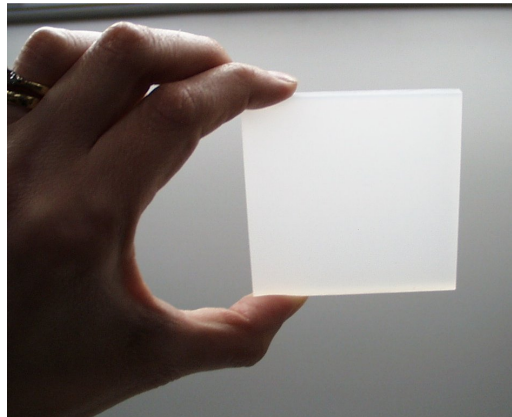
## Note

*Insight on Color*

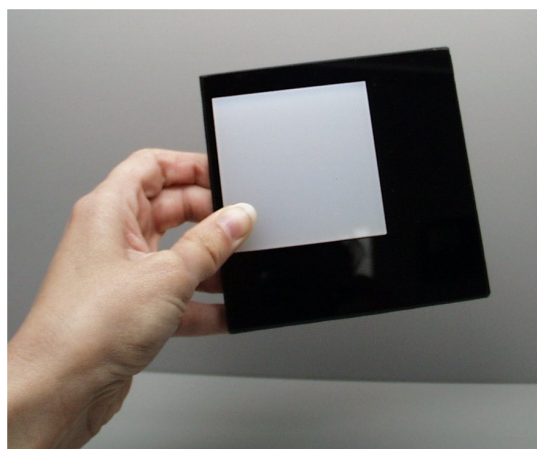
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## Backings for Translucent Samples

Translucent samples (such as plastic plaques, citrus juices, and semi-solids like salad dressing) reflect enough light that their reflected color may be measured, but they also transmit light. In the picture below, you can see the reflected whiteness of the plaque (the color reflected back to you from the surface of the plaque), and you can also see some light shining at you from behind the plaque (the transmitted light).



When you're looking at the reflected color of a translucent sample, the light that is transmitted through the sample is lost to the reflectance assessment. One way to prevent this loss of light is to provide a backing for the sample to make it appear more opaque. The pictures below show a single plastic plaque backed by a white tile, and then by a black tile.



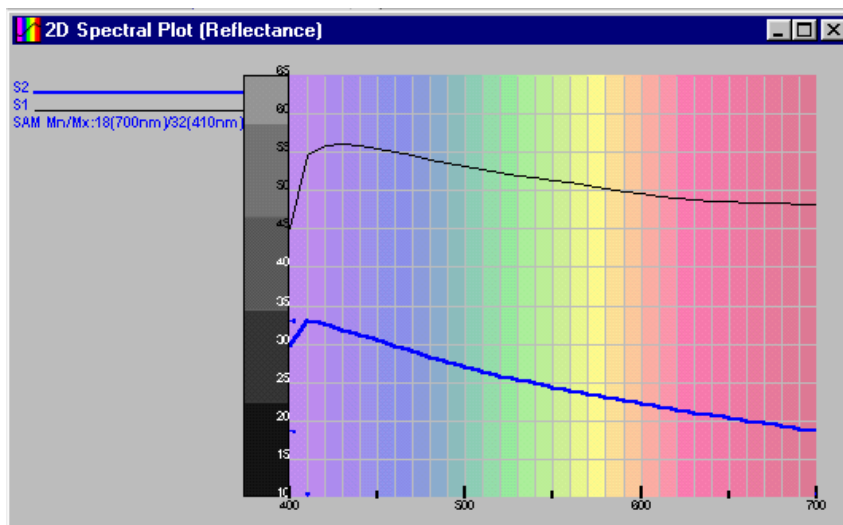
Do they look the same? No! Although the sample now appears opaque with both backings, the left sample looks whiter due to its white backing, and the right sample looks grayish due to its black backing. The samples look different to your eye with the different backings. Is the sample thing true when you measure with an instrument? You bet.

The sample above was measured on a LabScan XE with a 1.75-inch area of view, first with the white backing and then with the black backing.

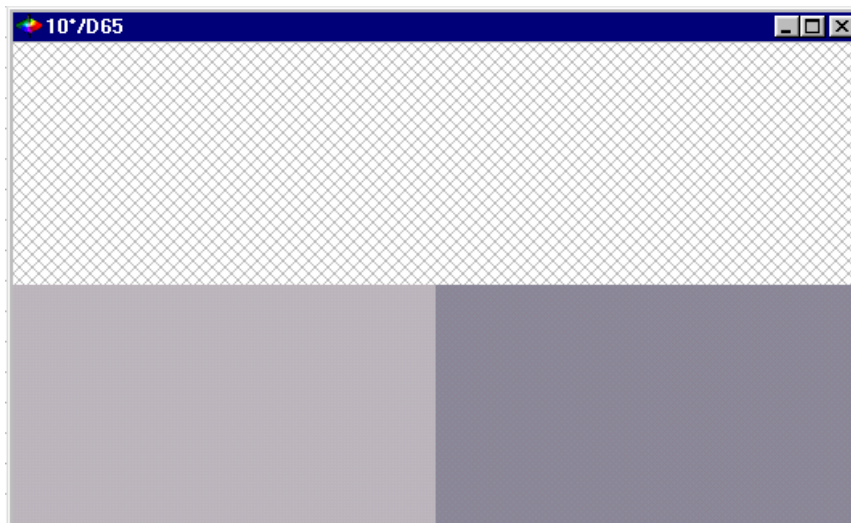
The following color values were received (D65/10°).

Backing	L*	a*	b*
White	76.89	-0.93	-3.77
Black	56.62	-1.50	-9.06

Just as we had noted visually, with the white backing the sample appears lighter (higher L\*) than the sample backed by black. The spectral plot and color rendering view shown below also illustrate the differences detected instrumentally.



The spectral reflectance plot for the sample. The top curve is the sample backed by white and the bottom curve is the sample backed by black. The curves have approximately the same shape.



**The color rendering (approximation of what the instrument sees) for the sample. The left box on the bottom is the sample backed by white and the right box on the bottom is the sample backed by black.**

So, what does all this mean? It means that for each type of translucent sample you measure and compare, you need to choose one backing, record that backing as part of your measurement, and stick with it. If you measure some samples with a white backing and others with a black (or other colored) backing, you will not be able to compare the measurements. So, what is the proper type of backing for your samples? That depends.

In general, for solid samples HunterLab recommends use of an uncalibrated white porcelain enamel on steel tile (available through HunterLab using catalog number 11-0108-50) or the white disk on the sample clamp, if you have one. Occasionally your specification may require backing with black, in which case you can back the sample using your black glass or the dark insert for your sample clamp, if you have one. For liquids or semi-solids that are measured in a sample cup, the white ceramic disk of the ring and disk set (HunterLab Part Number 02-4579-00) should be used to provide a white background to direct light that has traveled through the sample back to the detector. All measurements of opacity will require measurement with both a white and black backing. Backing samples with colors other than white and black is not recommended.

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