REPORT
INTERTEK TESTING SERVICES

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. J98025686 Date: September 25, 1998

REPORT NO. J98025686-001

SPECTRAL TRANSMITTANCE TESTS OF ONE SAMPLE

RENDERED TO

FILM TECHNOLOGIES
2544 TERMINAL DR. SOUTH
ST. PETERSBURG, FL 33712

Test: Spectral transmittance measurements from 200 to 400 nanometers of one IG with film test samples.

Statement of Limitation: At the client's request, the purpose of this report was to provide the performance data on the test samples. It is not valid to use this report for any other purpose.

Authorization: The tests were authorized by Purchase Order No. 737604

Standards Used: ASTM E 1348-90 Standard Test Method for Transmittance and Color by Spectrophotometry Using Hemispherical Geometry

Description of Sample: The client submitted two IG Unit test samples with SAFE "T" VIEW 400PS film on #2 and #3 surfaces.

Date of Test: September 18, 1998

Tests and Test Methods

Spectral transmittance measurements of test samples were conducted with an Optronics Model 750D Spectrophotometer. The calibration of the spectrophotometer is traceable to the National Institute of Standards and Technology. The tests were conducted on September 18, 1998. The measurements were made from 200 to 400 nanometers at five nanometers intervals. A 6 inch integrating sphere input module with a two inch diameter aperture was attached to the entrance port of the spectroradiometer. A Solar Blind Photomultiplier Tube photodetector was attached to the detector port of the spectroradiometer for the spectral range from 200 to 320 nanometers. An S-20 type Photomultiplier Tube photodetector was attached to the detector port of the spectroradiometer for the spectral range from 290 to 400 nanometers. A stabilized quartz halogen lamp operating on a regulated power source was used as the reference light source for the region from 290 to 400 nanometers. A stabilized deuterium arc lamp operating on a regulated power source was used as the reference light source for the region from 200 to 320 nanometers. A reference 100 percent reading was taken with no test sample in the lamp-sphere input path. Then sample measurements were made with the sample in the lamp-sphere input path. The ratio of the sample measurements to the reference reading at each wavelength was computed to determine the spectral transmittance. The spectral blocking was computed from the spectral transmittance data. Spectral transmittance and spectral blocking results were tabulated in the following table. Spectral transmittance curve and spectral blocking curve were plotted for the test sample.

The average percent transmittance and average percent blocking were computed for each of four UV regions. The four UV regions are uv-C (from 200 to 260nm), uv-B (from 260 to 320nm), uv-A (from 320 to 400nm), and the region from 300 to 380nm. The uv-A region is nearest to the visible region. The uv-C region is the farthest from the visible region and the most potentially hazardous.

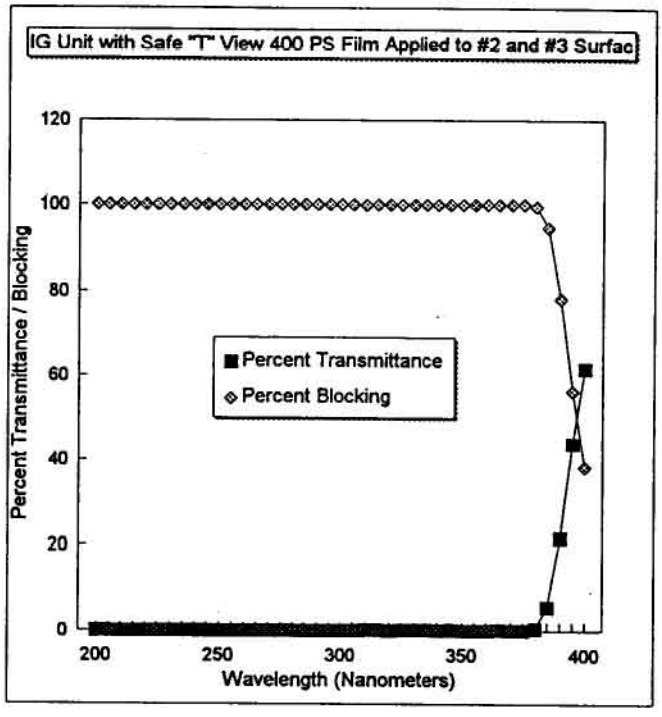
Equipment Used	Model Number	Control Number	Calibration Date
Optronic Spectroradiometer	750	E288	09/98
Detector Multiplexer	750-630		
S-20 Photomultiplier Tube	740-15		
Solar Blind Photomultiplier Tube	740-15		

Checked by: JC

Results of Tests

Spectral Transmittance of IG Unit with Safe "T" View 400 PS Film Applied to #2 and #3 Surfaces

Wavelength (Nanometers)	Percent Spectral Transmittance	Percent Blocking
200	0.0050	99.99
205	0.0094	99.99
210	0.0067	99.99
215	0.0065	99.99
220	0.0071	99.99
225	0.0088	99.99
230	0.0092	99.99
235	0.0118	99.99
240	0.0086	99.99
245	0.0077	99.99
250	0.0098	99.99
255	0.0071	99.99
260	0.0102	99.99
265	0.0099	99.99
270	0.0128	99.99
275	0.0082	99.99
280	0.0134	99.99
285	0.0048	100.00
290	0.0162	99.98
295	0.0053	99.99
300	0.0000	100.00
305	0.0609	99.94
310	0.1351	99.86
315	0.1127	99.89
320	0.0548	99.95
325	0.0703	99.93
330	0.0909	99.91
335	0.1129	99.89
340	0.0020	100.00
345	0.0831	99.92
350	0.0000	100.00
355	0.0249	99.98
360	0.0310	99.97
365	0.0812	99.92
370	0.0471	99.95
375	0.0273	99.97
380	0.497	99.50
385	5.479	94.52
390	21.83	78.17
395	43.79	56.21
400	61.62	38.38



uv-C Region 200 to 260 Nanometers
uv-B Region 260 to 320 Nanometers
uv-A Region 320 to 400 Nanometers

uv Region	Average Percent Transmittance	Average Percent Blocking
uv-C	0.0083	99.99
uv-B	0.0342	99.97
uv-A	7.873	92.13
300-380nm	0.0842	99.92

Checked by: AΣ

Conclusion

The results of this report are to be evaluated by the client.

In Charge of Tests:

David Ellis
Project Engineer
Photometrics

Report Reviewed By:

Ernest Dykeman/END
Ernest Dykeman
Engineering Supervisor
Photometrics