DuPont Teijin Films™

# Mylar® RL52

polyester film for packaging

## *Mylar*® and Ultraviolet Light

- Users concerned about the effect of ultraviolet light frequently inquire about the light transmission characteristics of *Mylar*® polyester films used for packaging or other purposes.
- This bulletin summarizes available information about *Mylar*® light transmission, with additional background information to provide perspective.
- Visible light is found in the wavelength range from 0.4 to 0.7 microns (or micrometers, µm). The infrared range runs from 0.7 microns up. The ultraviolet range runs from 0.4 microns down to about 0.15 microns.
- In the ultraviolet range, sunlight striking the surface of the earth has no content below 0.292 microns. This is due to absorption of all of the wavelengths below 0.292 by the ozone, oxygen, and nitrogen in the earth's atmosphere.
- Ordinary window glass cuts off nearly all UV wavelengths below .35 microns. (The therapeutic wavelengths of sunlight on the human body are from 0.315 down to 0.297 microns.)
- The transmission characteristics of 0.5 mil *Mylar*® films are very similar to window glass through the visible range, and with nearly zero transmission below 0.314 microns in the UV range.
- Fluorescent lighting depends on the electrical excitation of mercury vapor. When excited, the mercury vapor emits 85% of its total radiation at .363 microns. Of the total radiation emitted by the mercury vapors, 99% is converted to visible light by the phosphor powder deposit on the inside of the florescent tube. Only 1% of the light is delivered directly from the mercury vapor radiation at the .363 micron UV wavelength.
- Since *Mylar*® transmits almost nothing below 0.314 microns, none of this UV wavelength would penetrate into a package using *Mylar*® in its structure.
- *Mylar*® coated with PVDC has essentially the same light transmission characteristics as uncoated.
- *Mylar*® in the UV and visible light range is shown on the reverse side of this

bulletin. Typical low-density polyethylene is also shown for information.

## Percent Transmission

| Wavelength Microns (µm) | Uncoated *Mylar*® | PVDC Coated *Mylar*® | Typical 2 mil LDPE |
|---|---|---|---|
| **Ultraviolet** | | | |
| .26 | 0 | 0 | 74 |
| .28 | 0 | 0 | 77 |
| .30 | 0 | 0 | 79 |
| .32 | 68 | 56 | 80 |
| .34 | 79 | 80 | 81 |
| .36 | 80 | 82 | 82 |
| .38 | 81 | 84 | 83 |
| .40 | 82 | 84 | 84 |
| **Visible** | | | |
| .42 | 83 | 85 | 85 |
| .44 | 84 | 86 | 85 |
| .46 | 84 | 86 | 86 |
| .48 | 84 | 86 | 86 |
| .50 | 85 | 87 | 86 |
| .52 | 85 | 87 | 87 |
| .54 | 86 | 87 | 87 |
| .56 | 86 | 87 | 87 |
| .58 | 86 | 87 | 87 |
| .60 | 86 | 87 | 87 |
| .62 | 86 | 88 | 88 |
| .64 | 86 | 88 | 87 |
| .66 | 86 | 88 | 88 |
| .68 | 86 | 88 | 88 |
| .70 | 86 | 88 | 89 |

Note: These values are typical performance data for *Mylar*® polyester film; they are not intended to be used as design data. We believe this information is the best currently available on the subject. It is offered as a possible helpful suggestion in experimentation you may care to undertake along these lines. It is subject to revision as additional knowledge and experience is gained. DuPont Teijin Films makes no guarantee of results and assumes no obligation or liability whatsoever in connection with this information. This publication is not a license to operate under, or intended to suggest infringement of, any existing patents.

CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see DuPont Medical Caution Statement, H50102-1-DTF.

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