

Product Data Sheet, February 2006

Vivak® UV Solid Copolyester Sheets.

Your benefits:

- good weather resistance
- excellent thermoformability
- good impact strength
- good fire rating

Solid **Vivak® UV** sheets are made of thermoplastic copolyester. They offer high impact strength, a good fire rating and good weather resistance. These properties are demonstrated by our 10-year guarantee on mechanical strength and optical properties.

Vivak® UV sheets can be rapidly thermoformed at low energy consumption, short production times, extreme degrees of stretching and accurate mold surface reproduction, without pre-drying. The sheets are easy to screen print and machine.

Vivak® UV clear 2099 is a grade of clear transparent sheet with extremely high light transmission and high gloss.

Vivak® UV white 2130 sheets are translucent white sheets with good light diffusion and a pleasant hue.

Applications:

Ideal fields of application for Vivak® UV are: Outdoor P.O.S., displays, poster pillars, vending machines, poster boards and outdoor posters, advertising boards.

| | Test Conditions | Typical Values | Unit | Test Method |
|--|--|------------------|-------------------|-----------------|
| PHYSICAL | | | | |
| Density | | 1.27 | g/cm ³ | ISO 1183-1 |
| Moisture absorption | after storage in standard climate 23 °C/ 50 % RH | 0.2 | % | ISO 62-4 |
| | after storage in water at 23 °C until saturation | 0.6 | % | ISO 62-1 |
| Refractive index | 20 °C | 1.567 | – | ISO 489 |
| MECHANICAL | | | | |
| Tensile stress at yield | | > 45 | MPa | ISO 527-2/1B/50 |
| Elongation at yield | | 4 | % | ISO 527-2/1B/50 |
| Tensile strength | | > 45 | MPa | ISO 527-2/1B/50 |
| Elongation at break | | > 35 | % | ISO 527-2/1B/50 |
| Elastic modulus | | 2000 | MPa | ISO 527-2/1B/1 |
| Limiting flexural stress | | ca. 80 | MPa | ISO 178 |
| Impact strength | Charpy, unnotched | no break | kJ/m ² | ISO 179/1fU |
| | Charpy, notched | ca. 7 | kJ/m ² | ISO 179/1eA |
| | Izod, notched | ca. 6 | kJ/m ² | ISO 180/1A |
| THERMAL | | | | |
| Vicat softening temperature | Method B50 | 80 | °C | ISO 306 |
| Thermal conductivity | | 0.2 | W/m K | DIN 52612 |
| Coeff. of linear thermal expansion | | 0.05 | mm/m K | DIN 53752-A |
| Heat deflection temperature under load | Method A: 1.80 MPa | 63 | °C | ISO 75-2 |
| | Method B: 0.45 MPa | 70 | °C | ISO 75-2 |
| ELECTRICAL | | | | |
| Dielectric strength | | 20 | kV/mm | IEC 60243-1 |
| Volume resistivity | | 10 ¹⁵ | Ohm·cm | IEC 60093 |
| Surface resistivity | | 10 ¹⁶ | Ohm | IEC 60093 |
| Dielectric constant | at 10 ³ Hz | 2.6 | | IEC 60250 |
| | at 10 ⁶ Hz | 2.4 | | IEC 60250 |
| Dissipation factor | at 10 ³ Hz | 0.005 | | IEC 60250 |
| | bei 10 ⁶ Hz | 0.02 | | IEC 60250 |

The mechanical properties were measured on sheets of 4 mm thickness.

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Solid Copolyester Sheets.

Light Transmission:

Test Method to DIN 5036

The stated thicknesses are not all available as standard. Please ask us for more information.

The stated values are typical values only.

| Light transmission in % | 2 | 3 | 4 | 5 | 6 | 8 |
|-------------------------|----|----|----|----|----|----|
| Vivak® UV clear 2099 | 89 | 88 | 87 | 86 | 85 | 84 |
| Vivak® UV white 2130 | 39 | 30 | 30 | 24 | | |
| Vivak® UV bronze 2850 | | | 50 | 45 | 36 | |
| Vivak® UV grey 2760 | | | | 35 | 32 | |

Available sizes:

Vivak® UV is available in thicknesses of 2-8 mm and in the following sizes; other sizes, colors and sheet thicknesses on request.

Colors:

Vivak® UV clear 2099 Vivak® UV bronze 2850

Vivak® UV white 2130 Vivak® UV grey 2760

Sizes (Standard):

2,050 x 1,250 mm

3,050 x 2,050 mm

Permanent Service Temperature:

The permanent service temperature is approx. 65 °C.

Fire Rating:

Oxygen index (LOI) 26 % ISO 4589

| Country | Standard | Rating | Thickness | Color |
|---------------|------------------|----------------------|-------------------------------------|--|
| Europe | EN13501-1 | B-s1, d0 B-s2, d0 | 2-8 mm 2-6 mm | clear 2099 all colors |
| Germany | DIN 4102 | B 1 | 2-12 mm 5 and 6 mm 5 and 6 mm | clear 2099 bronze 2850 grey 2760 |
| Great Britain | BS 476 Part 7 | Class 1Y | 2-12 mm 2-6 mm | clear 2099 white 2130 |
| France | NFP 92-501 & 505 | M 2 | 2-5 mm 2-4 mm | clear 2099 white 2130 |
| | NFP 16-101 & 102 | F 1 | 2-8 mm 1.5-4 mm 6 mm | clear 2099 white 2130 grey 2760 |

Glow wire flammability index, IEC 60695-2-12, in °C (*)

| | 2 | 3 | 4 |
|---------------------|-----|-----|-----|
| Vivak UV clear 2099 | 960 | 960 | 960 |
| Vivak UV white 2130 | | 960 | 960 |

(*) fire certificates are limited in time, always check if the mentioned certificate is still valid

Thermoforming:

Owing to their excellent flow and mold surface reproduction, Vivak® UV sheets can be thermoformed at low temperatures without predrying. Because of its low specific heat capacity, Vivak® requires little energy for thermoforming.

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