

# UmaPET WH

Polyethylene Terephthalate

Ester Industries Ltd.

## Message:

### KEY FEATURES

High opacity and high whiteness, low transparency.

Excellent flatness, thermal stability at elevated temperatures and process ability.

One side chemical treated other side corona as optional based on end use applications.

### APPLICATIONS

Self adhesive label face stocks, lidding in high end applications, promotional calendars, Tickets for multiple uses, Prepaid cards, security and access cards, ink jet printing film, Photographic printing, high quality replacement for paper as a backing in blister packs, stationary and other industrial and packaging applications.

| General Information                    |                        |      |             |
|----------------------------------------|------------------------|------|-------------|
| Features                               | Excellent Printability |      |             |
|                                        | Good Processability    |      |             |
|                                        | Good Thermal Stability |      |             |
| Uses                                   | Film                   |      |             |
|                                        | Labels                 |      |             |
|                                        | Stationary Supplies    |      |             |
| Appearance                             | White                  |      |             |
| Forms                                  | Film                   |      |             |
| Physical                               | Nominal Value          | Unit | Test Method |
| Molding Shrinkage                      |                        |      | ASTM D1204  |
| Flow : 150°C, 30 min, 0.0300 mm        | 2.5                    | %    |             |
| Flow : 150°C, 30 min, 0.0360 mm        | 2.5                    | %    |             |
| Flow : 150°C, 30 min, 0.0500 mm        | 2.0                    | %    |             |
| Flow : 150°C, 30 min, 0.0750 mm        | 2.0                    | %    |             |
| Across Flow : 150°C, 30 min, 0.0300 mm | 0.60                   | %    |             |
| Across Flow : 150°C, 30 min, 0.0360 mm | 0.60                   | %    |             |
| Across Flow : 150°C, 30 min, 0.0500 mm | 0.60                   | %    |             |
| Across Flow : 150°C, 30 min, 0.0750 mm | 0.60                   | %    |             |
| Mechanical                             | Nominal Value          | Unit | Test Method |
| Coefficient of Friction                |                        |      | ASTM D1894  |
| vs. Itself - Dynamic <sup>1</sup>      | 0.40                   |      |             |
| vs. Itself - Dynamic <sup>2</sup>      | 0.40                   |      |             |
| vs. Itself - Dynamic <sup>3</sup>      | 0.40                   |      |             |
| vs. Itself - Dynamic <sup>4</sup>      | 0.40                   |      |             |
| vs. Itself - Static <sup>5</sup>       | 0.50                   |      |             |
| vs. Itself - Static <sup>6</sup>       | 0.50                   |      |             |

| vs. Itself - Static <sup>7</sup>         | 0.50              |                    |                 |
|------------------------------------------|-------------------|--------------------|-----------------|
| vs. Itself - Static <sup>8</sup>         | 0.50              |                    |                 |
| Films                                    | Nominal Value     | Unit               | Test Method     |
|                                          | 30                |                    |                 |
|                                          | 36                |                    |                 |
|                                          | 50                |                    |                 |
| Film Thickness - Tested                  | 75                | µm                 |                 |
| Film Thickness - Recommended / Available | 30, 36, 50, 75 µm |                    |                 |
| Tensile Strength                         |                   |                    | ASTM D882       |
| MD : Break, 30 µm                        | 167               | MPa                |                 |
| MD : Break, 36 µm                        | 157               | MPa                |                 |
| MD : Break, 50 µm                        | 157               | MPa                |                 |
| MD : Break, 75 µm                        | 147               | MPa                |                 |
| TD : Break, 30 µm                        | 177               | MPa                |                 |
| TD : Break, 36 µm                        | 167               | MPa                |                 |
| TD : Break, 50 µm                        | 167               | MPa                |                 |
| TD : Break, 75 µm                        | 157               | MPa                |                 |
| Tensile Elongation                       |                   |                    | ASTM D882       |
| MD : Break, 30 µm                        | 120               | %                  |                 |
| MD : Break, 36 µm                        | 120               | %                  |                 |
| MD : Break, 50 µm                        | 120               | %                  |                 |
| MD : Break, 75 µm                        | 120               | %                  |                 |
| TD : Break, 30 µm                        | 80                | %                  |                 |
| TD : Break, 36 µm                        | 80                | %                  |                 |
| TD : Break, 50 µm                        | 80                | %                  |                 |
| TD : Break, 75 µm                        | 80                | %                  |                 |
| Yield                                    |                   |                    | Internal Method |
| 5.00 nm                                  | 14.1              | m <sup>2</sup> /kg |                 |
| 30.0 µm                                  | 23.8              | m <sup>2</sup> /kg |                 |
| 36.0 µm                                  | 19.8              | m <sup>2</sup> /kg |                 |
| 75.0 µm                                  | 9.40              | m <sup>2</sup> /kg |                 |
| Wetting Tension                          |                   |                    | ASTM D2578      |
| 30.0 µm                                  | 44                | dyne/cm            |                 |
| 36.0 µm                                  | 44                | dyne/cm            |                 |
| 50.0 µm                                  | 44                | dyne/cm            |                 |

| 75.0 μm | 44            | dyne/cm |                 |
|---------|---------------|---------|-----------------|
| Optical | Nominal Value | Unit    | Test Method     |
| Opacity |               |         | Internal Method |
| -- 9    | 88            | %       |                 |
| -- 10   | 90            | %       |                 |
| -- 11   | 90            | %       |                 |
| -- 12   | 92            | %       |                 |
| Haze    |               |         | ASTM D1003      |
| 30.0 μm | 98            | %       |                 |
| 36.0 μm | 98            | %       |                 |
| 50.0 μm | 98            | %       |                 |
| 75.0 μm | 98            | %       |                 |
| NOTE    |               |         |                 |
| 1.      | 50 μm         |         |                 |
| 2.      | 36 μm         |         |                 |
| 3.      | 75 μm         |         |                 |
| 4.      | 30 μm         |         |                 |
| 5.      | 75 μm         |         |                 |
| 6.      | 50 μm         |         |                 |
| 7.      | 36 μm         |         |                 |
| 8.      | 30 μm         |         |                 |
| 9.      | 30 μm         |         |                 |
| 10.     | 50 μm         |         |                 |
| 11.     | 36 μm         |         |                 |
| 12.     | 75 μm         |         |                 |

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