

## Typical Properties for ECOZEN® YF 051

### ECOZEN YF series : Food & Beverage

#### Product Description

ECOZEN YF 051 is eco-friendly bio copolyester which is created using natural materials based on the extract from plant or vegetable materials therefore it does not include environmental hormone bisphenol A (BPA) is a controversial never-ending human hazards. This improves flow rate and mold release of products in the plastics manufacturing process. Also it is one of the excellent resins which have chemical resistance and food-stain resistance among the transparent resin used in food contact applications and its low oxygen permeability is useful for food storage container such as the airtight container.

ECOZEN YF 051 has various food contact related use of certification such as FDA (Food Contact Notification (FCN) No. 1075), NSF (the United States), EFSA (EU), JHOSPA (Japan), NHFPC (China) and KFDA (South Korea) and it has also the certification of bioplastics such as BETA certification.

ECOZEN YF 051 is obtained the GOLD Level for Cradle to Cradle (C2C) certification (the United States) and certified by the external environment-friendly products. SK Chemicals Company has obtained the GOLD Level as the world's first and only chemical resin supplier.

#### Key Attributes

- BPA / Phthalate free
- Excellent Heat Resistance
- Excellent Chemical & Stain Resistance
- Excellent Impact Strength
- High Flexural Strength
- High Transparency and Gloss
- Low Processing Temperature
- Less Residual Stress

#### Applications / Uses

- Food Container
- Airtight Container
- Baby Food Container
- Food Bowl
- Mixer & Blender
- Sports Bottle, Water Bottle, Juice Bottle etc.

#### ※ Approvals

FDA : Food and Drug Administration

NSF : National Sanitation Foundation

EFSA : European Food Safety Authority

JHOSPA : Japan Hygienic Olefin and Styrene Plastics Association

NHFPC : National Health and Family Planning Commission

BEAT Analytic Inc. : ISO/IEC 17025:2005 Accredited Radiocarbon Dating Laboratory

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| Property  | Test Method | Unit                       | Typical Values    |
|---|-------------|----------------------------|-------------------|
| Specific Gravity                                    | ASTM D792   | -                          | 1.25              |
| Mold Shrinkage (Parallel to Flow)                   | ASTM D955   | %                          | 0.2~0.5           |
| Rockwell Hardness                                   | ASTM D785   | R-scale                    | 115               |
| <b>Mechanical</b>                                   |             |                            |                   |
| Tensile Strength @ Yield<br>50mm/min (2 inch/min)   | ASTM D638   | MPa (kgf/cm <sup>2</sup> ) | 47 (480)          |
| Tensile Strength @ Break<br>50mm/min (2 inch/min)   | ASTM D638   | MPa (kgf/cm <sup>2</sup> ) | 48 (490)          |
| Elongation @ Yield<br>50mm/min (2 inch/min)         | ASTM D638   | %                          | 5.8               |
| Elongation @ Break<br>50mm/min (2 inch/min)         | ASTM D638   | %                          | 150               |
| Flexural Strength<br>1.27mm/min (0.05 inch/min)     | ASTM D790   | MPa (kgf/cm <sup>2</sup> ) | 71 (720)          |
| Flexural Modulus<br>1.27mm/min (0.05 inch/min)      | ASTM D790   | MPa (kgf/cm <sup>2</sup> ) | 1,860<br>(19,000) |
| Izod Impact Strength,<br>Notched @ 23 °C(73 °F)     | ASTM D256   | J/m                        | No Break          |
| <b>Thermal</b>                                      |             |                            |                   |
| Heat Distortion Temperature<br>@ 0.455 MPa(66 psi)  | ASTM D648   | °C (°F)                    | 80 (176)          |
| <b>Optical</b>                                      |             |                            |                   |
| Haze  | ASTM D1003  | %                          | < 1.0             |
| Transmittance                                       | ASTM D1003  | %                          | 89                |
| <b>Flammability</b>                                 |             |                            |                   |
| UL Flammability Classification<br>@ 3.2mm thickness | UL94        |                            | V-2               |

The data listed here is preliminary data sheet of product. Therefore this sheet should not be used to establish specification limits or used alone as a basis for design. This information is not intended as a warranty of any kind. Customers must make their own representative test and assume all risks of use, whether used alone or in combination with other products. SK Chemicals assumes no obligation or liability of any advice furnished by it or results obtained with respect to these products. All warranties of merchantability for a particular purpose or use are excluded and disclaimed.

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