# *Typical Properties for ECOZEN® YA 051*

**ECOZEN YA series : Electronics & Home Appliance**

**Product Description**

ECOZEN YA 051 takes the advantages of transparent plastics such as PC, PMMA, PETG (Polyethylene Terephthalate Glycol) and complements the shortcomings of those plastics. Also, it has transparency as PC (Polycarbonate) but no harmful substances like BPA (Bisphenol A) and has excellent impact strength at low temperature which is similar to the level of PC therefore this is useful BPA regulation refrigerator parts. This improves flow rate and mold release of products in the plastics manufacturing process.
Chemical resistance properties are becoming increasingly important because consumers regard electronics as furniture so polish the transparent plastics with detergents and other chemicals. It is one of the best chemical resistance plastics of transparent plastics so it is very useful transparent electronic parts. You can choose various grades (HDT 80~ 110℃) according to the heat resistance specification. It enables to inject a variety of products designed to insert injection with metals or natural materials. In flame retardant properties, especially important applications to electronic parts, it has self-extinguishing character and is obtained UL 94 V-2 rating (the United States) and is good for the Europe Candle Flame retardant regulations.
ECOZEN YA 051 is obtained in SVHC, RoHS and TOY EN71 certification (EU) and received certification from various harmful substances and environmental regulation substances. It 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**

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

**Applications / Uses**

- Safety door for washing machine
- Ice container for refrigerator
- Various parts for refrigerator
- Kimchi container for refrigerator
- LED TV Stand neck
- Body & Case for wireless electric products

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| Property | Test Method | Unit | Typical Values |
|---|---|---|---|
| **Specific Gravity** | **ASTM D792** | **-** | **1.25** |
| **Mold Shrinkage (Parallel to Flow)** | **ASTM D955** | **%** | **0.2~0.3** |
| **Rockwell Hardness** | **ASTM D785** | **R-scale** | **115** |
| ***Mechanical*** | | | |
| **Tensile Strength** @ Yield 50mm/min (2 inch/min) | **ASTM D638** | **MPa (kgf/cm$^2$)** | **47 (480)** |
| **Tensile Strength** @ Break 50mm/min (2 inch/min) | **ASTM D638** | **MPa (kgf/cm$^2$)** | **48 (490)** |
| **Elongation** @ Yield 50mm/min (2 inch/min) | **ASTM D638** | **%** | **5.8** |
| **Elongation** @ Break 50mm/min (2 inch/min) | **ASTM D638** | **%** | **150** |
| **Flexural Strength** 1.27mm/min (0.05 inch/min) | **ASTM D790** | **MPa (kgf/cm$^2$)** | **71 (720)** |
| **Flexural Modulus** 1.27mm/min (0.05 inch/min) | **ASTM D790** | **MPa (kgf/cm$^2$)** | **1,860 (19,000)** |
| **Izod Impact Strength, Notched** @ 23 $^{o}$C(73 $^{o}$F) | **ASTM D256** | **J/m** | **No Break** |
| ***Thermal*** | | | |
| **Heat Distortion Temperature** @ 0.455 MPa(66 psi) | **ASTM D648** | **℃ (℉)** | **80 (176)** |
| ***Optical*** | | | |
| **Haze** | **ASTM D1003** | **%** | **< 1.0** |
| **Transmittance** | **ASTM D1003** | **%** | **89** |
| ***Flammability*** | | | |
| **UL Flammability Classification** @ 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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