

## ASTM Property

|         |            |           |
|---------|------------|-----------|
| starex® | Grade      | SR-0310FM |
|         | Resin Type | ABS       |

Automotive

| Item                            | Measuring Method | Condition                        | Unit                | Value   |
|---------------------------------|------------------|----------------------------------|---------------------|---------|
| Physical                        |                  |                                  |                     |         |
| Specific Gravity                | ASTM D792        | Natural or representative color  | -                   | 1.06    |
| Water Absorption                | ASTM D570        | 23°C                             | %                   | 0.3     |
| Melt Flow Index                 | ASTM D1238       | 220°C, 10kg                      | g/10min             | 20      |
| Mold Shrinkage(MD)              | ASTM D955        | Flow at 3.2mm(MD)                | %                   | 0.4-0.7 |
| Mold Shrinkage(TD)              | ASTM D955        | X-Flow at 3.2mm(TD)              | %                   | 0.4-0.7 |
| Mechanical                      |                  |                                  |                     |         |
| Tensile Strength at Yield       | ASTM D638        | 5mm/min                          | kgf/cm <sup>2</sup> | 400     |
| Tensile Strain at break         | ASTM D638        | 5mm/min                          | %                   | 35      |
| Tensile Modulus                 | ASTM D638        | 5mm/min                          | kgf/cm <sup>2</sup> | -       |
| Tensile Strength at break       | ASTM D638        | 5mm/min                          | kgf/cm <sup>2</sup> | -       |
| Flexural Strength               | ASTM D790        | 2.8mm/min                        | kgf/cm <sup>2</sup> | 640     |
| Flexural Modulus                | ASTM D790        | 2.8mm/min                        | kgf/cm <sup>2</sup> | 21000   |
| Izod Impact Strength(notched)   | ASTM D256        | 1/4 inch at 23°C                 | kgf·cm/cm           | 15      |
| Izod Impact Strength(unnotched) | ASTM D256        | 1/4 inch at 23°C                 | kgf·cm/cm           | -       |
| Rockwell Hardness               | ASTM D785        | R-Scale                          | -                   | 109     |
| Thermal                         |                  |                                  |                     |         |
| Heat Deflection Temperature     | ASTM D648        | 18.56kgf/cm <sup>2</sup> , 6.4mm | °C                  | 90      |
| Heat Deflection Temperature     | ASTM D648        | 4.6kgf/cm <sup>2</sup> , 6.4mm   | °C                  | -       |
| Heat Deflection Temperature     | ASTM D648        | 18.56kgf/cm <sup>2</sup> , 3.2mm | °C                  | 90      |
| Heat Deflection Temperature     | ASTM D648        | 4.6kgf/cm <sup>2</sup> , 3.2mm   | °C                  | -       |
| VICAT Softening Temperature     | ISO 306          | B/50                             | °C                  | 103     |
| VICAT Softening Temperature     | ISO 306          | B/120                            | °C                  | 106     |

1. The above figures are the representative values based on NP, which may vary from color to color, and can be used as a reference only for the purpose of selecting materials.
2. The above figures are basic guidelines for selecting materials; therefore, they are not regarded as the official specifications for materials involved, and cannot be used for the purpose of designing a mold.
3. The above values can be adjusted in accordance with processing conditions, and the specific change in value is allowed only within a limited range in which adjustment has no adverse or negative impact on the final product.

Information inserted in this document such as data, statements, representative values, etc. are provided solely for customer convenience. It does not expressly or impliedly guarantee anything regarding the safety or practicability of the (1) materials, (2) products, and/or (3) design that utilizes recommendations or proposals, of LOTTE Chemical. Furthermore, nothing in the contents of this document shall have any legal binding effect, and especially, the representative value is simply for reference and is not a minimum value that has legal binding effect.

Whether materials and/or products of LOTTE Chemical and/or a design that uses or utilizes LOTTE Chemical' recommendations or proposals are (is) compatible with individual uses shall be determined solely by each user and such user shall be solely responsible for any results, including but not limited to, any and all loss and damages incurred due to such uses. Users must implement and verify all testing and analyses for proving the safety and compatibility of final products that have been created or altered by using LOTTE Chemical' materials or products. The data and values inserted and/or contained in this document may be changed due to quality improvement of the product without any prior notification.

※ The last update date : 07/15/2019