

# Starex GR-4020H

Acrylonitrile Butadiene Styrene

SAMSUNG SDI CO., LTD.

Message:

Starex GR-4020H is an Acrylonitrile Butadiene Styrene (ABS) product filled with glass fiber. It is available in Africa & Middle East, Asia Pacific, Europe, Latin America, or North America. Primary characteristic: flame rated.

| General Information                                |                |                   |                       |
|----------------------------------------------------|----------------|-------------------|-----------------------|
| UL YellowCard                                      | E115797-219535 |                   |                       |
| Filler / Reinforcement                             | Glass Fiber    |                   |                       |
| Physical                                           | Nominal Value  | Unit              | Test Method           |
| Specific Gravity                                   | 1.18           | g/cm <sup>3</sup> | ASTM D792, ISO 1183   |
| Melt Mass-Flow Rate (MFR) (220°C/10.0 kg)          | 7.5            | g/10 min          | ASTM D1238, ISO 1133  |
| Molding Shrinkage - Flow (3.20 mm)                 | 0.10 to 0.30   | %                 | ASTM D955, ISO 2577   |
| Ash Content                                        | 20.0           |                   | ASTM D5630            |
| Hardness                                           | Nominal Value  | Unit              | Test Method           |
| Rockwell Hardness (R-Scale)                        | 112            |                   | ASTM D785, ISO 2039-2 |
| Mechanical                                         | Nominal Value  | Unit              | Test Method           |
| Tensile Modulus                                    |                |                   |                       |
| -- <sup>1</sup>                                    | 5400           | MPa               | ASTM D638             |
| --                                                 | 5500           | MPa               | ISO 527-2/50          |
| Tensile Strength                                   |                |                   |                       |
| Yield <sup>2</sup>                                 | 83.0           | MPa               | ASTM D638             |
| Yield                                              | 95.0           | MPa               | ISO 527-2/50          |
| Break <sup>3</sup>                                 | 83.0           | MPa               | ASTM D638             |
| Break                                              | 100            | MPa               | ISO 527-2/50          |
| Tensile Elongation                                 |                |                   |                       |
| Break <sup>4</sup>                                 | 3.0            | %                 | ASTM D638             |
| Break                                              | 3.0            | %                 | ISO 527-2/50          |
| Flexural Modulus                                   |                |                   |                       |
| -- <sup>5</sup>                                    | 5300           | MPa               | ASTM D790             |
| -- <sup>6</sup>                                    | 5800           | MPa               | ISO 178               |
| Flexural Strength                                  |                |                   |                       |
| -- <sup>7</sup>                                    | 110            | MPa               | ASTM D790             |
| -- <sup>8</sup>                                    | 120            | MPa               | ISO 178               |
| Impact                                             | Nominal Value  | Unit              | Test Method           |
| Charpy Notched Impact Strength <sup>9</sup> (23°C) | 10             | kJ/m <sup>2</sup> | ISO 179/1eA           |
| Notched Izod Impact                                |                |                   |                       |
| 0°C, 3.18 mm                                       | 79             | J/m               | ASTM D256             |
| 23°C, 6.35 mm                                      | 69             | J/m               | ASTM D256             |

| 23°C <sup>10</sup>                | 9.0             | kJ/m <sup>2</sup> | ISO 180/1A  |
|-----------------------------------|-----------------|-------------------|-------------|
| Thermal                           | Nominal Value   | Unit              | Test Method |
| Deflection Temperature Under Load |                 |                   |             |
| 0.45 MPa, Unannealed, 6.40 mm     | 103             | °C                | ASTM D648   |
| 0.45 MPa, Unannealed, 4.00 mm     | 101             | °C                | ISO 75-2/B  |
| 1.8 MPa, Unannealed, 6.40 mm      | 95.0            | °C                | ASTM D648   |
| 1.8 MPa, Unannealed, 4.00 mm      | 96.0            | °C                | ISO 75-2/A  |
| Vicat Softening Temperature       | 102             | °C                | ISO 306/B50 |
| Flammability                      | Nominal Value   |                   | Test Method |
| Flame Rating                      |                 |                   | UL 94       |
| 1.50 mm                           | HB              |                   |             |
| 3.00 mm                           | HB              |                   |             |
| 6.00 mm                           | HB              |                   |             |
| Injection                         | Nominal Value   | Unit              |             |
| Drying Temperature                |                 |                   |             |
| --                                | 80.0            | °C                |             |
| Desiccant Dryer                   | 80.0            | °C                |             |
| Drying Time                       |                 |                   |             |
| --                                | 2.0 to 4.0      | hr                |             |
| Desiccant Dryer                   | 2.0 to 3.0      | hr                |             |
| Suggested Max Moisture            | < 0.050         | %                 |             |
| Rear Temperature                  | 180 to 190      | °C                |             |
| Middle Temperature                | 200 to 210      | °C                |             |
| Front Temperature                 | 220 to 230      | °C                |             |
| Nozzle Temperature                | 240             | °C                |             |
| Mold Temperature                  | 40.0 to 80.0    | °C                |             |
| Injection Pressure                | 49.0 to 245     | MPa               |             |
| Back Pressure                     | 0.490 to 1.96   | MPa               |             |
| Screw Speed                       | 50 to 150       | rpm               |             |
| NOTE                              |                 |                   |             |
| 1.                                | 5.0 mm/min      |                   |             |
| 2.                                | 5.0 mm/min      |                   |             |
| 3.                                | 5.0 mm/min      |                   |             |
| 4.                                | 5.0 mm/min      |                   |             |
| 5.                                | 2.8 mm/min      |                   |             |
| 6.                                | 2.0 mm/min      |                   |             |
| 7.                                | 2.8 mm/min      |                   |             |
| 8.                                | 2.0 mm/min      |                   |             |
| 9.                                | Thickness: 4 mm |                   |             |
| 10.                               | Thickness: 4 mm |                   |             |

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