## Hanwha Total PP GB34F

High Crystallinity Polypropylene
HANWHA TOTAL PETROCHEMICALS Co., Ltd.

## Message:

GB34F is a fire-resistant G/F modified polypropylene compound modified by filling glass fiber to improve mechanical rigidity and heat-resistance. It also possesses excellent flame retardancy. This product can be produced modifying a variety of base PPs, including HIPP (High Isotactic Polypropylene), in HANWHA TOTAL's special processing technology. G/F modified PP is commonly used in making products such as car switch covers, electric tool housings and the like requiring high rigidity, high heat resistance and flame retardancy.

| General Information                       |                                    |          |             |  |  |
|---|------------------------------------|----------|-------------|--|--|
| Filler / Reinforcement                    | Glass fiber reinforced material    |          |             |  |  |
| Features                                  | Low warpage                        |          |             |  |  |
|   | Rigidity, high                     |          |             |  |  |
|   | m-benzene dimethyl                 |          |             |  |  |
|   | Impact resistance, high            |          |             |  |  |
|   | Workability, good                  |          |             |  |  |
|   | Good weather resistance            |          |             |  |  |
|   | Heat resistance, high              |          |             |  |  |
|   | Flame retardancy                   |          |             |  |  |
| Uses                                      | Electrical/Electronic Applications |          |             |  |  |
|   | Electrical components              |          |             |  |  |
|   | Power/other tools                  |          |             |  |  |
|   | Industrial application             |          |             |  |  |
|   | Shell                              |          |             |  |  |
| Forms                                     | Particle                           |          |             |  |  |
| Processing Method                         | Injection molding                  |          |             |  |  |
| Physical                                  | Nominal Value                      | Unit     | Test Method |  |  |
| Specific Gravity                          | 1.20                               | g/cm³    | ASTM D792   |  |  |
| Melt Mass-Flow Rate (MFR) (230°C/2.16 kg) | 5.0                                | g/10 min | ASTM D1238  |  |  |
| Molding Shrinkage - Flow (2.00 mm)        | 0.30 - 0.80                        | %        | ASTM D955   |  |  |
| Hardness                                  | Nominal Value                      | Unit     | Test Method |  |  |
| Rockwell Hardness (R-Scale)               | 103                                |          | ASTM D785   |  |  |
| Mechanical                                | Nominal Value                      | Unit     | Test Method |  |  |
| Tensile Strength <sup>1</sup>             | 68.6                               | MPa      | ASTM D638   |  |  |
| Tensile Elongation (Break)                | 3.0                                | %        | ASTM D638   |  |  |
| Apparent Bending Modulus                  | 88.3                               | MPa      | ASTM D747   |  |  |
| Flexural Modulus                          | 4610                               | MPa      | ASTM D790   |  |  |
| Impact                                    | Nominal Value                      | Unit     | Test Method |  |  |

| Notched Izod Impact (23°C)             | 98            | J/m  | ASTM D256   |
|--|---------------|------|-------------|
| Thermal                                | Nominal Value | Unit | Test Method |
| Deflection Temperature Under Load (0.4 | 5             |      |             |
| MPa, Unannealed)                       | 157           | °C   | ASTM D648   |
| Flammability                           | Nominal Value |      | Test Method |
| Flame Rating (1.59 mm)                 | V-0           |      | UL 94       |
| Injection                              | Nominal Value | Unit |             |
| Rear Temperature                       | 180 - 220     | °C   |             |
| Middle Temperature                     | 180 - 220     | °C   |             |
| Front Temperature                      | 180 - 220     | °C   |             |
| Mold Temperature                       | 40.0 - 80.0   | °C   |             |
| Injection Pressure                     | 58.8 - 108    | MPa  |             |
| Back Pressure                          | 0.490 - 0.981 | MPa  |             |
| Screw Speed                            | 20 - 70       | rpm  |             |
| Injection instructions                 |               |      |             |
| Injection Speed: max                   |               |      |             |
| NOTE                                   |               |      |             |
| 1.                                     | 50 mm/min     |      |             |

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## Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519 Phone: +86 13424755533 Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

