

# TECHNYL® A 60G1 V30 BLACK 15 N

Polyamide 66  
Solvay Engineering Plastics

Message:

TECHNYL® A 60G1 V30 Black 15N is a Non-halogenated flame retardant polyamide 66 reinforced with 30% of glass fiber, heat stabilized, for injection moulding. This grade offers excellent flame retardancy properties (UL 94, 5VA, GWIT) combined with excellent processing, mechanical and electrical performance. It can withstand temperatures of 160°C for over 6000 hours and has a UL F1 rating for weatherability resistance

| General Information       |       |                                                       |                   |              |
|---------------------------|-------|-------------------------------------------------------|-------------------|--------------|
| UL YellowCard             |       | E44716-467001                                         |                   |              |
| Filler / Reinforcement    |       | Glass fiber reinforced material, 30% filler by weight |                   |              |
| Additive                  |       | heat stabilizer                                       |                   |              |
|                           |       | Flame retardancy                                      |                   |              |
| Features                  |       | Halogen-free                                          |                   |              |
| Uses                      |       | Electrical/Electronic Applications                    |                   |              |
| Agency Ratings            |       | EC 1907/2006 (REACH)                                  |                   |              |
|                           |       | EN 45545                                              |                   |              |
|                           |       | NF F 16-101                                           |                   |              |
|                           |       | UL QMFZ2                                              |                   |              |
| RoHS Compliance           |       | RoHS compliance                                       |                   |              |
| Appearance                |       | Black                                                 |                   |              |
|                           |       | Grey                                                  |                   |              |
|                           |       | Natural color                                         |                   |              |
| Forms                     |       | Particle                                              |                   |              |
| Processing Method         |       | Injection molding                                     |                   |              |
| Resin ID (ISO 1043)       |       | PA66-GF30 FR(40)                                      |                   |              |
| Physical                  | Dry   | Conditioned                                           | Unit              | Test Method  |
| Density                   | 1.46  | --                                                    | g/cm <sup>3</sup> | ISO 1183/A   |
| Water Absorption          |       |                                                       |                   | ISO 62       |
| 23°C, 24 hr               | 0.73  | --                                                    | %                 | ISO 62       |
| Saturated, 23°C           | 4.3   | --                                                    | %                 | ISO 62       |
| Equilibrium, 23°C, 50% RH | 1.8   | --                                                    | %                 | ISO 62       |
| Outdoor Suitability       | f1    | --                                                    |                   | UL 746C      |
| Mechanical                | Dry   | Conditioned                                           | Unit              | Test Method  |
| Tensile Modulus (23°C)    | 11700 | 8410                                                  | MPa               | ISO 527-2/1A |
| Tensile Strength          |       |                                                       |                   |              |
| Fracture, 23°C            | 135   | 105                                                   | MPa               | ASTM D638    |

|                                                   |         |             |           |                    |
|---------------------------------------------------|---------|-------------|-----------|--------------------|
| Fracture, 23°C                                    | 145     | 110         | MPa       | ISO 527-2/1A       |
| Tensile Elongation                                |         |             |           |                    |
| Fracture, 23°C                                    | 3.5     | --          | %         | ASTM D638          |
| Fracture, 23°C                                    | 2.3     | 4.0         | %         | ISO 527-2          |
| Flexural Modulus (23°C)                           | 11000   | 7900        | MPa       | ASTM D790, ISO 178 |
| Flexural Strength                                 |         |             |           |                    |
| 23°C                                              | 220     | 180         | MPa       | ASTM D790          |
| 23°C                                              | 250     | 180         | MPa       | ISO 178            |
| Impact                                            | Dry     | Conditioned | Unit      | Test Method        |
| Charpy Notched Impact Strength                    |         |             |           | ISO 179/1eA        |
| -30°C                                             | 8.0     | --          | kJ/m²     | ISO 179/1eA        |
| 23°C                                              | 8.0     | 11          | kJ/m²     | ISO 179/1eA        |
| Charpy Unnotched Impact Strength                  |         |             |           | ISO 179/1eU        |
| -30°C                                             | 55      | --          | kJ/m²     | ISO 179/1eU        |
| 23°C                                              | 55      | 60          | kJ/m²     | ISO 179/1eU        |
| Notched Izod Impact (23°C)                        | 80      | --          | J/m       | ASTM D256          |
| Thermal                                           | Dry     | Conditioned | Unit      | Test Method        |
| Heat Deflection Temperature (1.8 MPa, Unannealed) |         |             |           |                    |
|                                                   | 245     | --          | °C        | ISO 75-2/Af        |
| Melting Temperature                               | 263     | --          | °C        | ISO 11357-3        |
| Electrical                                        | Dry     | Conditioned | Unit      | Test Method        |
| Surface Resistivity                               | 2.0E+15 | --          | ohms      | IEC 60093          |
| Volume Resistivity                                | 6.0E+14 | --          | ohms · cm | IEC 60093          |
| Dielectric Strength (0.800 mm)                    | 38      | --          | kV/mm     | IEC 60243-1        |
| Comparative Tracking Index (Solution A)           | 600     | --          | V         | IEC 60112          |
| Flammability                                      | Dry     | Conditioned | Unit      | Test Method        |
| Flame Rating                                      |         |             |           | UL 94              |
| 0.8 mm                                            | V-0     | --          |           | UL 94              |
|                                                   | V-0     |             |           |                    |
| 1.6 mm                                            | 5VA     | --          |           | UL 94              |
|                                                   | V-0     |             |           |                    |
| 3.2 mm                                            | 5VA     | --          |           | UL 94              |
| Glow Wire Flammability Index                      |         |             |           | IEC 60695-2-12     |
| 0.8 mm                                            | 960     | --          | °C        | IEC 60695-2-12     |
| 1.6 mm                                            | 960     | --          | °C        | IEC 60695-2-12     |
| 3.2 mm                                            | 960     | --          | °C        | IEC 60695-2-12     |

|                                         |           |      |    |                |
|-----------------------------------------|-----------|------|----|----------------|
| Glow Wire Ignition Temperature (0.8 mm) | 775       | --   | °C | IEC 60695-2-13 |
| Oxygen Index                            | 33        | --   | %  | ISO 4589-2     |
| French Fire Index                       | F3        | --   |    | NF F16-101     |
| French Smoke Index                      | I3        | --   |    | NF F16-101     |
| European Railways Certifications        |           |      |    | EN 45545-2     |
| R22                                     | HL3       | --   |    | EN 45545-2     |
| R23                                     | HL3       | --   |    | EN 45545-2     |
| Injection                               | Dry       | Unit |    |                |
| Drying Temperature                      | 80        |      | °C |                |
| Suggested Max Moisture                  | 0.20      |      | %  |                |
| Rear Temperature                        | 265 - 275 |      | °C |                |
| Middle Temperature                      | 265 - 275 |      | °C |                |
| Front Temperature                       | 270 - 280 |      | °C |                |
| Mold Temperature                        | 60 - 90   |      | °C |                |
| Injection instructions                  |           |      |    |                |

The material is supplied in airtight bags, ready for use. In case that the virgin material has absorbed moisture, it must be dried with a dehumidified air drying equipment, dew point mini -20°C. Recommended time 2-4h Injection Advice:

All reinforced flame retardant compounds generate some level of abrasion/corrosion to the steel processing equipment.

These issues can be worsened by using incorrect processing conditions (temperatures, residence time, moisture level ...) during the moulding process. Therefore, Solvay recommends to use the advised processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retarded compounds, Solvay advises to use a steel containing high chromium & high carbon content (minimum concentration of 16% Chromium) to prevent corrosion and abrasion. For the correct reference of steel associated to flame retardant compounds processing, please refer to your equipment manufacturers. For Mould Temperature, in the case of parts where the surface roughness is required we can recommend a temperature at 120°C. Of course it should be noted that this improvement in the surface appearance may be at the expense of the cycle time. The processing parameters like processing temperatures are a recommendation and can be adjusted in function of injection machine size, part geometry / design

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