

TECHNYL® A 60G1 V30 Black 15N is a polyamide 66 based on a non-halogenated flame retardant system, 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

|                          |                                                            |                                                                      |
|--------------------------|------------------------------------------------------------|----------------------------------------------------------------------|
| Material Status          | • Commercial: Active                                       |                                                                      |
| Availability             | • Africa & Middle East                                     | • Europe                                                             |
| Filler / Reinforcement   | • Glass Fiber, 30% Filler by Weight                        |                                                                      |
| Additive                 | • Flame Retardant                                          | • Heat Stabilizer                                                    |
| Key Benefits             | • F1 UL Classification<br>• GWIT 775°C at 0.8 mm thickness | • UL 94 5VA<br>• UL 94 V0 at 0.8 mm                                  |
| Applications             | • Conversion Devices<br>• Electrical protection devices    | • Electrical vehicle charger<br>• Electrical/Electronic Applications |
| Certification/Compliance | • EC 1907/2006 (REACH)<br>• EN 45545                       | • UL QMFZ2                                                           |
| RoHS Compliance          | • RoHS Compliant                                           |                                                                      |
| Colors Available         | • Black<br>• Grey                                          | • Natural Color                                                      |
| Forms                    | • Pellets                                                  |                                                                      |
| Processing Method        | • Injection Molding                                        |                                                                      |
| Resin ID (ISO 1043)      | • PA66-GF30 FR(40)                                         |                                                                      |

### PROPERTIES

Typical values of properties are for Black grades

| Physical                         | Dry   | Conditioned | Unit  | Test Method  |
|----------------------------------|-------|-------------|-------|--------------|
| Water Absorption                 |       |             |       | ISO 62       |
| 24 hr, 23°C                      | 0.73  |             | %     |              |
| Saturation, 23°C                 | 4.3   |             | %     |              |
| Equilibrium, 23°C, 50% RH        | 1.8   |             | %     |              |
| Outdoor Suitability (All Colors) | f1    |             |       | UL 746C      |
| Density                          | 1.46  |             | g/cm³ | ISO 1183/A   |
| Mechanical                       | Dry   | Conditioned | Unit  | Test Method  |
| Tensile Modulus (23°C)           | 10200 | 8410        | MPa   | ISO 527-2/1A |
| Tensile Strength                 |       |             |       |              |
| Break, 23°C                      | 135   | 105         | MPa   | ASTM D638    |
| Break, 23°C                      | 145   | 110         | MPa   | ISO 527-2/1A |

| Mechanical                              | Dry     | Conditioned          | Unit | Test Method          |
|-----------------------------------------|---------|----------------------|------|----------------------|
| Tensile Elongation                      |         |                      |      |                      |
| Break, 23°C                             | 3.5     | %                    |      | ASTM D638            |
| Break, 23°C                             | 2.3     | 4.0 %                |      | ISO 527-2            |
| Flexural Modulus (23°C)                 | 10000   | 7900 MPa             |      | ASTM D790<br>ISO 178 |
| Flexural Strength                       |         |                      |      |                      |
| 23°C                                    | 220     | 180 MPa              |      | ASTM D790            |
| 23°C                                    | 250     | 180 MPa              |      | ISO 178              |
| Charpy Notched Impact Strength          |         |                      |      | ISO 179/1eA          |
| -30°C                                   | 8.0     | kJ/m <sup>2</sup>    |      |                      |
| 23°C                                    | 8.0     | 11 kJ/m <sup>2</sup> |      |                      |
| Charpy Unnotched Impact Strength        |         |                      |      | ISO 179/1eU          |
| -30°C                                   | 55      | kJ/m <sup>2</sup>    |      |                      |
| 23°C                                    | 55      | 60 kJ/m <sup>2</sup> |      |                      |
| Notched Izod Impact (23°C)              | 80      | J/m                  |      | ASTM D256            |
| Thermal                                 | Dry     | Conditioned          | Unit | Test Method          |
| Heat Deflection Temperature             |         |                      |      | ISO 75-2/Af          |
| 1.8 MPa, Unannealed                     | 245     | °C                   |      |                      |
| 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            |
| Electric 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 |                  |             |
| 1.6 mm                                  | • | V-0 |                  |             |
|                                         | • | 5VA |                  |             |
| 3.2 mm                                  | • | V-0 |                  |             |
|                                         | • | 5VA |                  |             |
| Glow Wire Flammability Index            |   |     |                  | IEC         |
| 0.8 mm                                  |   | 960 | °C               | 60695-2-12  |
| 1.6 mm                                  |   | 960 | °C               |             |
| 3.2 mm                                  |   | 960 | °C               |             |
| Glow Wire Ignition Temperature (0.8 mm) |   | 775 | °C               | IEC         |
|                                         |   |     |                  | 60695-2-13  |
| Oxygen Index                            |   | 33  | %                | ISO 4589-2  |
| Additional Information                  |   |     |                  | Test Method |
| European Railways Certifications        |   |     | Dry Unit         | EN 45545-2  |
| R22                                     |   |     | HL3              |             |
| R23                                     |   |     | HL3              |             |

## PROCESSING

| Injection              | Dry Unit      |
|------------------------|---------------|
| Drying Temperature     | 80 °C         |
| Suggested Max Moisture | 0.20 %        |
| Rear Temperature       | 265 to 275 °C |
| Middle Temperature     | 265 to 275 °C |
| Front Temperature      | 270 to 280 °C |
| Mold Temperature       | 60 to 90 °C   |



### Injection Notes

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 may be magnified by using incorrect processing conditions (temperatures, residence time, moisture level ...) during the moulding process. Therefore, Solvay recommends you adhere to the processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retardant compounds, Solvay advises you to use a steel with high chromium and high carbon content (having a 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. In the case of high requirements on surface quality a mould temperature of up to 120°C can be considered.
- The processing parameters like processing temperatures are a recommendation and can be adjusted in function of injection machine size, part geometry / design

### DISCLAIMER

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## SAFETY INFORMATION

Detailed information regarding safety are available on the safety data sheet (SDS). SDS is sent with the first material order or available by contacting our customer services

## REGULATIONS COMPLIANCE

This product is not intended to be used for the following regulated market: food contact, drinking water, toys, cosmetics or medical devices.

This grade complies with ROHS Directive 2011/65/EU and 2015/863 as amended.

Grades produced or imported in Europe comply with REACH directive 1907/2006/EC as amended.

## CUSTOMER SERVICES

Our customer services are not only concerned with manufacturing and supply of Engineering Plastics products. We are available to assist our customers in finding technical solutions that meet their requirements. Specific support is in particular offered on:

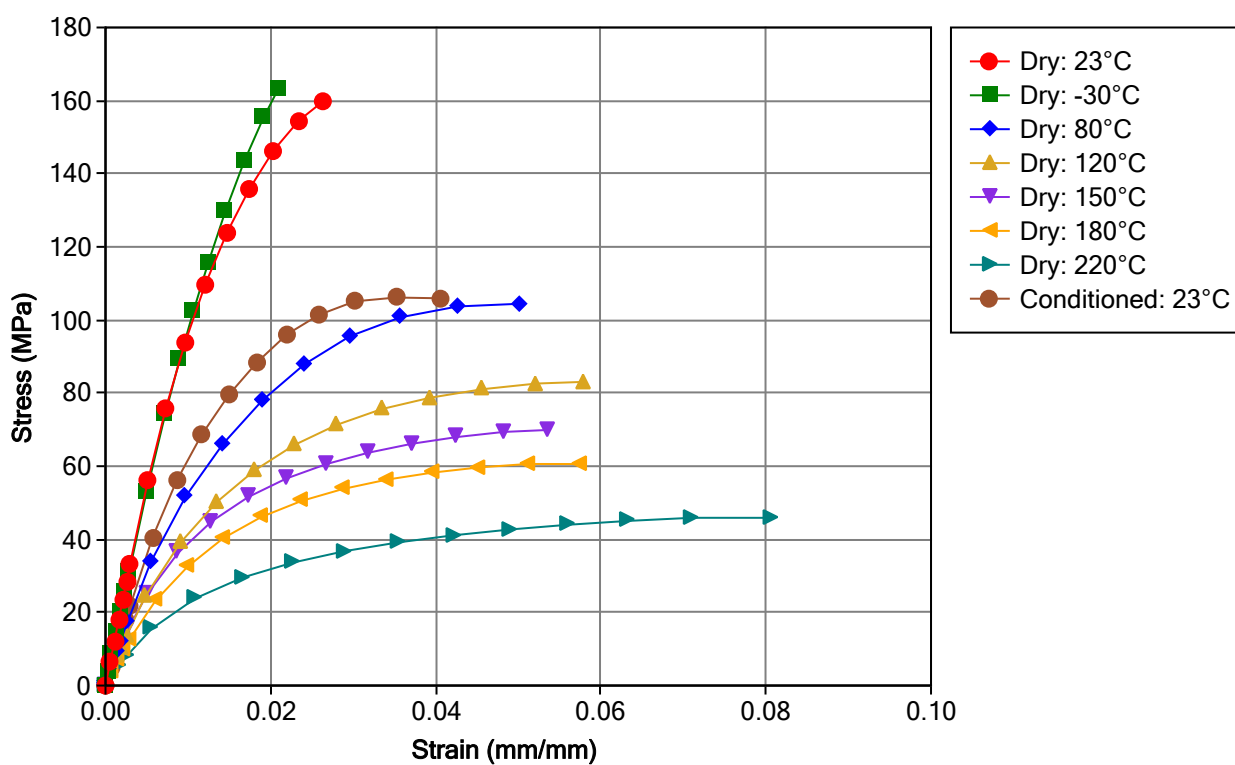
- Material selection
- Material testing
- Parts design advice, training for design engineers
- Part testing
- Design simulation
- Processing through different technologies
- Assembly and post-processing technology expertise
- Parts optimization through Computer Aided Design

You can find more information on Solvay Product range on our internet product finder at the following address: <http://www.technyl.com>



### MULTIPOINT DATA

Isothermal Stress vs. Strain (ISO 11403-1)



**Notes**

Typical properties: these are not to be construed as specifications.

