

# TECHNYL® A 217 BLACK 61

Polyamide 66  
Solvay Engineering Plastics

Message:

TECHNYL ® A 217 Black 61 is an unreinforced polyamide 66, heat stabilized, standard viscosity, for injection moulding. This grade offers all the primary properties of unreinforced polyamide 66. In addition it has improved resistance to high temperature and it can be used for components which have to withstand mid term temperature stresses.

| General Information       |      |                                    |                   |              |
|---------------------------|------|------------------------------------|-------------------|--------------|
| UL YellowCard             |      | E44716-235564                      |                   |              |
| Additive                  |      | heat stabilizer                    |                   |              |
| Features                  |      | Heat Stabilized - Inorganic        |                   |              |
|                           |      | Electroplating                     |                   |              |
|                           |      | Good liquidity                     |                   |              |
|                           |      | Good demoulding performance        |                   |              |
| Uses                      |      | Electrical/Electronic Applications |                   |              |
|                           |      | Connector                          |                   |              |
|                           |      | Application in Automobile Field    |                   |              |
| Agency Ratings            |      | EC 1907/2006 (REACH)               |                   |              |
|                           |      | EN 45545                           |                   |              |
|                           |      | NF F 16-101                        |                   |              |
|                           |      | UL QMFZ2                           |                   |              |
| RoHS Compliance           |      | RoHS compliance                    |                   |              |
| Appearance                |      | Black                              |                   |              |
|                           |      | Natural color                      |                   |              |
| Forms                     |      | Particle                           |                   |              |
| Processing Method         |      | Injection molding                  |                   |              |
| Resin ID (ISO 1043)       |      | PA66                               |                   |              |
| Physical                  | Dry  | Conditioned                        | Unit              | Test Method  |
| Density                   | 1.14 | --                                 | g/cm <sup>3</sup> | ISO 1183/A   |
| Water Absorption          |      |                                    |                   | ISO 62       |
| 23°C, 24 hr               | 1.3  | --                                 | %                 | ISO 62       |
| Equilibrium, 23°C, 50% RH | 2.9  | --                                 | %                 | ISO 62       |
| Mechanical                | Dry  | Conditioned                        | Unit              | Test Method  |
| Tensile Modulus (23°C)    | 3500 | 1700                               | MPa               | ISO 527-2/1A |
| Tensile Strength          |      |                                    |                   |              |

|                                         |          |             |                   |                        |
|-----------------------------------------|----------|-------------|-------------------|------------------------|
| Yield, 23°C                             | 85.0     | --          | MPa               | ASTM D638              |
| Yield, 23°C                             | 85.0     | 60.0        | MPa               | ISO 527-2/1A           |
| Fracture, 23°C                          | 50.0     | 40.0        | MPa               | ISO 527-2/1A           |
| Tensile Strain                          |          |             |                   |                        |
| Yield, 23°C                             | 4.5      | 10          | %                 | ISO 527-2              |
| Fracture, 23°C                          | 30       | --          | %                 | ASTM D638              |
| Fracture, 23°C                          | 20       | 200         | %                 | ISO 527-2              |
| Flexural Modulus                        |          |             |                   |                        |
| 23°C                                    | 3500     | --          | MPa               | ASTM D790              |
| 23°C                                    | 3100     | 1450        | MPa               | ISO 178                |
| Flexural Strength                       |          |             |                   |                        |
| 23°C                                    | 125      | --          | MPa               | ASTM D790              |
| 23°C                                    | 130      | 80.0        | MPa               | ISO 178                |
| Impact                                  | Dry      | Conditioned | Unit              | Test Method            |
| Charpy Notched Impact Strength (23°C)   | 4.5      | 11          | kJ/m <sup>2</sup> | ISO 179/1eA            |
| Charpy Unnotched Impact Strength (23°C) | No Break | No Break    |                   | ISO 179/1eU            |
| Notched Izod Impact                     |          |             |                   |                        |
| 23°C                                    | 80       | --          | J/m               | ASTM D256              |
| 23°C                                    | 4.0      | 10          | kJ/m <sup>2</sup> | ISO 180                |
| Unnotched Izod Impact Strength (23°C)   | No Break | No Break    |                   | ISO 180/1U             |
| Thermal                                 | Dry      | Conditioned | Unit              | Test Method            |
| Deflection Temperature Under Load       |          |             |                   |                        |
| 0.45 MPa, not annealed                  | 220      | --          | °C                | ASTM D648              |
| 0.45 MPa, not annealed                  | 210      | --          | °C                | ISO 75-2/Bf            |
| 1.8 MPa, not annealed                   | 75.0     | --          | °C                | ASTM D648, ISO 75-2/Af |
| Melting Temperature                     | 262      | --          | °C                | ISO 11357-3            |
| Electrical                              | Dry      | Conditioned | Unit              | Test Method            |
| Surface Resistivity                     | 1.0E+15  | 1.0E+14     | ohms              | IEC 60093              |
| Volume Resistivity                      | 1.0E+15  | 1.0E+16     | ohms·cm           | IEC 60093              |
| Dielectric Strength (2.00 mm)           | 25       | 22          | kV/mm             | IEC 60243-1            |
| Relative Permittivity                   | 2.90     | 3.20        |                   | IEC 60250              |
| Dissipation Factor                      | 0.030    | 0.080       |                   | IEC 60250              |
| Comparative Tracking Index              |          |             |                   | IEC 60112              |
| Solution a                              | 600      | 600         | V                 | IEC 60112              |
| Solution B                              | 450      | --          | V                 | IEC 60112              |
| Flammability                            | Dry      | Conditioned | Unit              | Test Method            |
| Flame Rating                            |          |             |                   | UL 94                  |
| 1.6 mm                                  | V-2      | --          |                   | UL 94                  |

|                                         |     |    |    |                |
|-----------------------------------------|-----|----|----|----------------|
| 3.2 mm                                  | V-2 | -- |    | UL 94          |
| Glow Wire Flammability Index            |     |    |    | IEC 60695-2-12 |
| 0.8 mm                                  | 650 | -- | °C | IEC 60695-2-12 |
| 1.6 mm                                  | 650 | -- | °C | IEC 60695-2-12 |
| Glow Wire Ignition Temperature (1.6 mm) | 650 | -- | °C | IEC 60695-2-13 |
| Oxygen Index                            | 26  | -- | %  | ISO 4589-2     |
| French Fire Index                       | F2  | -- |    | NF F16-101     |
| French Smoke Index                      | I3  | -- |    | NF F16-101     |

| Injection              | Dry       | Unit |    |
|------------------------|-----------|------|----|
| Drying Temperature     | 80        |      | °C |
| Suggested Max Moisture | 0.20      |      | %  |
| Rear Temperature       | 265 - 275 |      | °C |
| Middle Temperature     | 270 - 280 |      | °C |
| Front Temperature      | 280 - 285 |      | °C |
| Mold Temperature       | 60 - 80   |      | °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:

For unfilled polyamide, Solvay recommends the use of high alloy steel with a weak chromium content. For example: X38CrMoV5-1 (EN Norm) - 1.2367 /1.2343 (DIN Norm). For Mould Temperature, in the case of parts where the surface roughness is required we can recommend a temperature of 90°C to 120°C with an optimum at 105°C.

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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