TECHNYL® PROTECT
Flame retardants

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TECHNICAL DATA SHEET

# TECHNYL PROTECT AT 20 V25 BK

**(Previously TECHNYL AT 20 V25 BLACK)**

TECHNYL PROTECT AT 20 V25 BK is a Red Phosphorous flame retardant grade reinforced with 25% of glass fiber, heat stabilized, for injection moulding. This grade offers UL94V V-0 at 0.8mm and CTI 600 V associated with good mechanical properties.

## General

| | | |
|---|---|---|
| Feature | Corrosion resistant | Good surface finish |
| Polymer type | (PA66 + PET) blend | |
| Processing technology | Injection molding | |
| Certification | RoHS<br>EC 1907/2006 (REACH) | UL-Yellow Card |
| Applications | Electrical/Electronic Applications | |
| Colors available | Black | Natural |
| Forms | Pellets | |

## Product identification

| | |
|---|---|
| ISO 1043 abbreviation | PA66+PET-GF25 FR(52) |
| ISO 16396 designation | PA66+PET,GF25FR(52)0,M1,S14-090 |

## Physical properties

| | Condition | Standard | Unit | Value |
|---|---|---|---|---|
| Density | | ISO 1183 | g/cm³ | 1.39 |
| Humidity absorption | T=23°C, 50% RH | ISO 62 | % | 1.5 - 1.6 |
| Water absorption | 24 hr, 23°C | ISO 62 | % | 0.65 - 0.75 |
| Molding shrinkage, parallel | | ISO 294-4, 2577 | % | 0.3 |
| Molding shrinkage, normal | | ISO 294-4, 2577 | % | 1 |

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| | Condition | Standard | Unit | Value |
|---|---|---|---|---|
| **Mechanical properties** | | | | **dam / cond.*** |
| Tensile modulus | 1 mm/min | ISO 527-1/-2 | MPa | 9200 / 7200 |
| Stress at break | | ISO 527-1/-2 | MPa | 150 / 115 |
| Strain at break | | ISO 527-1/-2 | % | 2.3 / 2.8 |
| Flexural modulus, ISO 178 | 2 mm/min | ISO 178 | MPa | 6900 / 4600 |
| Flexural strength, ISO 178 | 2 mm/min | ISO 178 | MPa | 205 / 150 |
| Charpy impact strength, +23°C | +23°C | ISO 179/1eU | kJ/m² | 40 / 50 |
| Charpy impact strength, -30°C | -30°C | ISO 179/1eU | kJ/m² | 35 / - |
| Charpy notched impact strength, +23°C | +23°C | ISO 179/1eA | kJ/m² | 7.5 / 13 |
| Charpy notched impact strength, -30°C | -30°C | ISO 179/1eA | kJ/m² | 7.1 / - |
| Izod impact strength, +23°C | +23°C | ISO 180/1U | kJ/m² | 36 / - |
| Izod notched impact strength, +23°C | +23°C | ISO 180/1A | kJ/m² | 7.2 / - |
| **Thermal properties** | | | | |
| Melting temperature, 10°C/min | | ISO 11357-1 | °C | 260 |
| Temp. of deflection under load, 1.80 MPa | 1.80 MPa | ISO 75 | °C | 240 |
| **Electrical properties** | | | | |
| Volume resistivity | | IEC 62631-3-1 | ohm.m | 4E+012 |
| Surface resistivity | | IEC 62631-3-1 | ohm | 2E+015 |
| Comparative tracking index | Solution A | IEC 60112 | V | 600 |
| CTI performance level category | | Sol A | | PLC 0 |
| Dielectric strength | 1 mm | IEC 60243-1 | kV/mm | 35 |

## Burning behaviour

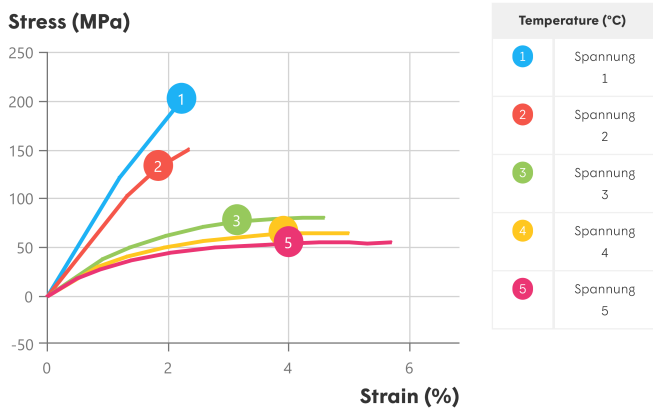
| | Condition | Standard | Unit | Value |
|---|---|---|---|---|
| UL Yellow Card availability | | Click here to have access to the UL Yellow Card → QMFZ2.E44716 | | |
| Flammability, 0.75 mm | 0.75 mm | UL 94 | | V0 |
| Flammability, 1.5 mm | 1.5 mm | UL 94 | | V0, 5VA |
| Flammability, 3.0 mm | 3.0 mm | UL 94 | | V0, 5VA |
| Glow-wire flammability index, GWFI, 0.75 mm | 0.75 mm | IEC 60695-2-12 | °C | 960 |
| Glow-wire flammability index, GWFI, 1.5 mm | 1.5 mm | IEC 60695-2-12 | °C | 960 |
| Glow-wire flammability index, GWFI, 3.0 mm | 3.0 mm | IEC 60695-2-12 | °C | 960 |
| Glow-wire ignition temperature, GWIT, 0.75 mm | 0.75 mm | IEC 60695-2-13 | °C | 775 |
| Glow-wire ignition temperature, GWIT, 1.5 mm | 1.5 mm | IEC 60695-2-13 | °C | 775 |
| Glow-wire ignition temperature, GWIT, 3.0 mm | 3.0 mm | IEC 60695-2-13 | °C | 850 |
| Burning rate, FMVSS, Thickness 1 mm | | FMVSS 302 | | <100 |

**: conditioned according to ISO 1110*

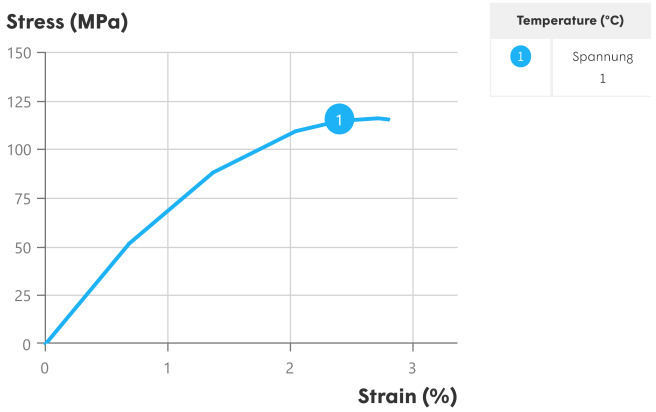
## Processing conditions

| | |
|---|---|
| Drying temperature/time | 80 to 100 °C / 4 h |
| Suggested max moisture | 0.1 % |
| Rear temperature | 270 - 275 °C |
| Middle temperature | 275 - 280 °C |
| Front temperature | 280 - 290 °C |
| Recommended mould temperature | 80 - 100 °C |

Stress-strain, dry




Stress-strain, conditioned



## 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 minimum -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, Domo recommends you adhere to the processing conditions detailed in this technical data sheet. For equipment that comes into contact with molten flame retardant compounds, Domo 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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