

**Product Texts**

20% Glass Reinforced, High Flow, Halogen free and free of red phosphorous

ISO 1043 PA46-GF20 FR(40)

Stanyl® HFX31S is an electro-friendly & halogen-free flame-retarded high heat polyamide that offers an excellent combination of high CTI, flow and weld-line strength. HFX-grades are often used in connectors such as USB type C.

| <b>Processing/Physical Characteristics</b> | <b>dry / cond</b> | <b>Unit</b> | <b>Test Standard</b> |
|--------------------------------------------|-------------------|-------------|----------------------|
| <b>ISO Data</b>                            |                   |             |                      |
| <sup>[C]</sup> Molding shrinkage, parallel | <b>0.5 / *</b>    | %           | ISO 294-4, 2577      |
| <sup>[C]</sup> Molding shrinkage, normal   | <b>1.4 / *</b>    | %           | ISO 294-4, 2577      |

[C]: CAMPUS

| <b>Mechanical properties</b>                         | <b>dry / cond</b>  | <b>Unit</b>       | <b>Test Standard</b> |
|------------------------------------------------------|--------------------|-------------------|----------------------|
| <b>ISO Data</b>                                      |                    |                   |                      |
| <sup>[C]</sup> Tensile Modulus                       | <b>7600 / 5000</b> | MPa               | ISO 527              |
| <sup>[C]</sup> Stress at break                       | <b>120 / 85</b>    | MPa               | ISO 527              |
| <sup>[C]</sup> Strain at break                       | <b>3 / 3.4</b>     | %                 | ISO 527              |
| <sup>[C]</sup> Charpy impact strength, +23°C         | <b>49 / 53</b>     | kJ/m <sup>2</sup> | ISO 179/1eU          |
| <sup>[C]</sup> Charpy notched impact strength, +23°C | <b>7 / 10</b>      | kJ/m <sup>2</sup> | ISO 179/1eA          |

[C]: CAMPUS

| <b>Thermal properties</b>                                  | <b>dry / cond</b> | <b>Unit</b> | <b>Test Standard</b> |
|------------------------------------------------------------|-------------------|-------------|----------------------|
| <b>ISO Data</b>                                            |                   |             |                      |
| <sup>[C]</sup> Melting temperature, 10°C/min               | <b>295 / *</b>    | °C          | ISO 11357-1/-3       |
| <sup>[C]</sup> Glass transition temperature, 10°C/min      | <b>75 / *</b>     | °C          | ISO 11357-1/-2       |
| <sup>[C]</sup> Temp. of deflection under load, 1.80 MPa    | <b>285 / *</b>    | °C          | ISO 75-1/-2          |
| <sup>[C]</sup> Coeff. of linear therm. expansion, parallel | <b>25 / *</b>     | E-6/K       | ISO 11359-1/-2       |
| <sup>[C]</sup> Coeff. of linear therm. expansion, normal   | <b>65 / *</b>     | E-6/K       | ISO 11359-1/-2       |
| <sup>[C]</sup> Burning Behav. at thickness h               | <b>V-0 / *</b>    | class       | IEC 60695-11-10      |
| Thickness tested                                           | <b>3.0 / *</b>    | mm          | -                    |
| Yellow Card available                                      | <b>yes / *</b>    | -           | -                    |

[C]: CAMPUS

| <b>Electrical properties</b>              | <b>dry / cond</b>      | <b>Unit</b> | <b>Test Standard</b> |
|-------------------------------------------|------------------------|-------------|----------------------|
| <b>ISO Data</b>                           |                        |             |                      |
| <sup>[C]</sup> Volume resistivity         | <b>&gt;1E13 / 4E10</b> | Ohm*m       | IEC 62631-3-1        |
| <sup>[C]</sup> Surface resistivity        | <b>* / 7E14</b>        | Ohm         | IEC 62631-3-2        |
| <sup>[C]</sup> Electric strength          | <b>33 / 30</b>         | kV/mm       | IEC 60243-1          |
| <sup>[C]</sup> Comparative tracking index | <b>550 / -</b>         | -           | IEC 60112            |

[C]: CAMPUS

| <b>Other properties</b>            | <b>dry / cond</b> | <b>Unit</b>       | <b>Test Standard</b> |
|------------------------------------|-------------------|-------------------|----------------------|
| <sup>[C]</sup> Humidity absorption | <b>2.7 / *</b>    | %                 | Sim. to ISO 62       |
| <sup>[C]</sup> Density             | <b>1360 / -</b>   | kg/m <sup>3</sup> | ISO 1183             |

[C]: CAMPUS

**Characteristics**

**Processing**

Injection Molding

**Special Characteristics**

Flame retardant, Halogen-free, Phosphorus-free

**Delivery form**

Pellets

**Regional Availability**

North America, Europe, Asia Pacific

**Other text information**

**Injection molding**

[Stanyl® Recommendations for Micro Molding](#)

[Injection Molding Recommendations](#)

[Hot runner recommendations for molding high heat performance Engineering Materials](#)

[Steel recommendations for molds screws and barrels](#)

[Supporting document for Stanyl quality processing](#)

[Trouble shooting guideline for injection molding](#)