# FRIANYL® A3 W GF25 V0E BK 9004/YG

Polyamide 66 compound, 25% glass fiber reinforced, heat resistant, based on flame retardants halogen and red phosphorous free. UL classified V0@1,5mm.
*Designed for Electrical applications requiring self-extinguishing properties combined with good mechanical performances, this grade meets the most stringent safety requirements for insulating materials. Ideal for thicker walled parts.*

## Product information

| | | |
|---|---|---|
| Part Marking Code | >(PA66+PA6)-GF25 FR(40)< | ISO 11469 |

## Rheological properties

| | | | |
|---|---|---|---|
| Moulding shrinkage range, parallel | 0.3 - 0.6 | % | ISO 294-4, 2577 |
| Moulding shrinkage range, normal | 0.6 - 0.9 | % | ISO 294-4, 2577 |

## Typical mechanical properties

| | dry/cond. | | |
|---|---|---|---|
| Tensile Modulus | 9000 / 5000 | MPa | ISO 527-1/-2 |
| Stress at break, 5mm/min | 130 / 80 | MPa | ISO 527-1/-2 |
| Strain at break, 5mm/min | 3 / 8 | % | ISO 527-1/-2 |
| Charpy impact strength, 23°C | 60 / 70 | kJ/m² | ISO 179/1eU |
| Charpy impact strength, -30°C | 55 / 55 | kJ/m² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 9 / 13 | kJ/m² | ISO 179/1eA |
| Charpy notched impact strength, -30°C | 7 / 7 | kJ/m² | ISO 179/1eA |

## Thermal properties

| | | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 260 | °C | ISO 11357-1/-3 |
| Temp. of deflection under load, 1.8 MPa | 210 | °C | ISO 75-1/-2 |
| Temp. of deflection under load, 0.45 MPa | 220 | °C | ISO 75-1/-2 |

## Flammability

| | | | |
|---|---|---|---|
| Burning Behav. at 1.5mm nom. thickn. | V-0 | class | UL 94 |
| Burning Behav. at thickness h | V-0 | class | UL 94 |
| Glow Wire Flammability Index, 0.75mm | 960 | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 3mm | 960 | °C | IEC 60695-2-12 |
| FMVSS Class | | | ISO 3795 (FMVSS 302) |

## Electrical properties

| | dry/cond. | | |
|---|---|---|---|
| Volume resistivity | >1E11 / - | Ohm.m | IEC 62631-3-1 |
| Surface resistivity | >1E11 / - | Ohm | IEC 62631-3-2 |
| Electric strength | 45 / - | kV/mm | IEC 60243-1 |
| Comparative tracking index | Group I | | IEC 60112 |
| Comparative tracking index | PLC 0 / - | PLC | UL 746A |

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## Other properties

| | | | |
|---|---|---|---|
| Humidity absorption, 2mm | 1.6 | % | Sim. to ISO 62 |
| Water absorption, 2mm | 5.3 | % | Sim. to ISO 62 |
| Density | 1360 | kg/m³ | ISO 1183 |

## Characteristics

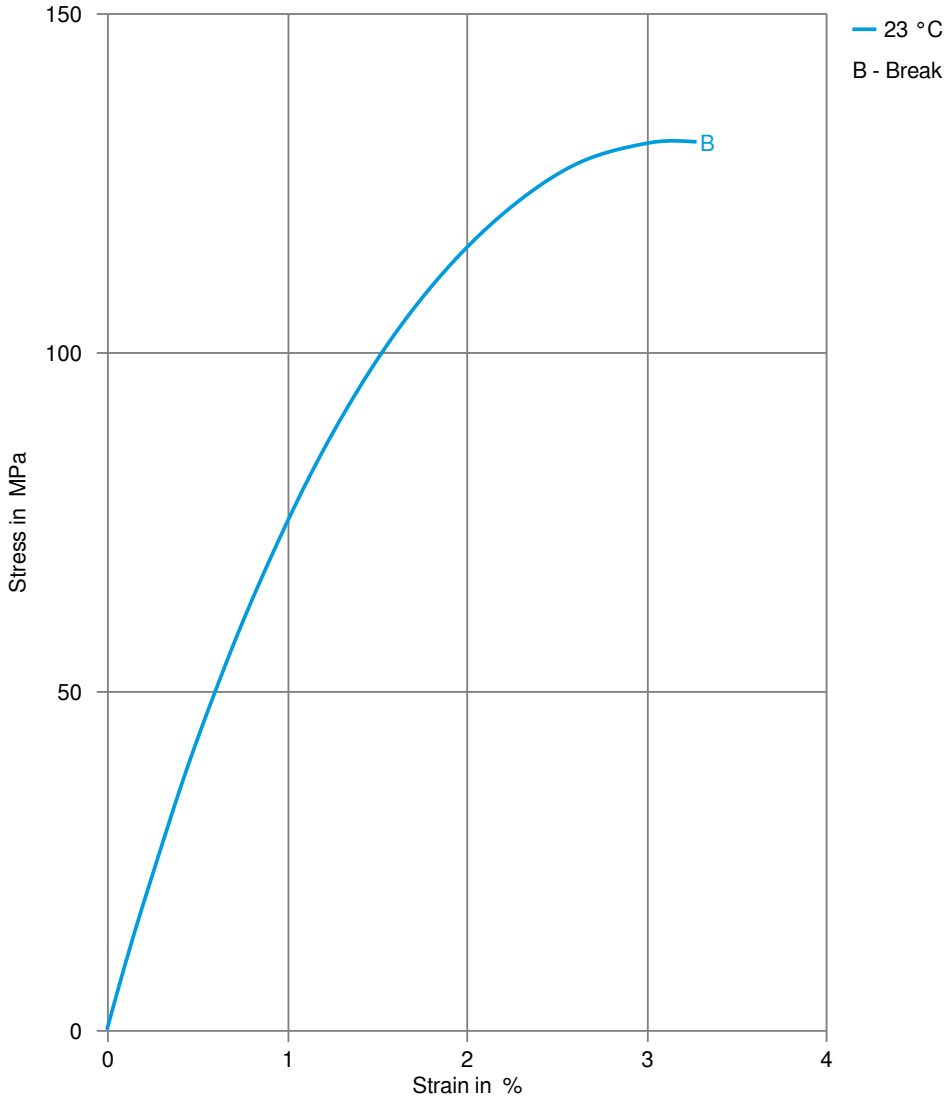
| | |
|---|---|
| Additives | Flame retardant, Non-halogenated/Red phosphorous free flame retardant |

## Additional information

| | |
|---|---|
| Injection molding | The following conditions apply to a standard injection moulding process. Machine temperatures: barrel 265-290°C (PA66), 235-270°C (PA6), nozzle and hot runners up to 300°C (up to 290°C products with flame retardants). Mould temperatures: 60-80°C, (80-100°C highly reinforced grades). Back pressure: typically 5-10 bar (hydraulic pressure). Temperatures exceeding 300°C and long residence time could lead to additives degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the moulded part characteristics. For further details, please refer to the document 'Instructions for injection moulding' or contact our technical support team. |

# FRIANYL® A3 W GF25 V0E BK 9004/YG

## Stress-strain (dry)



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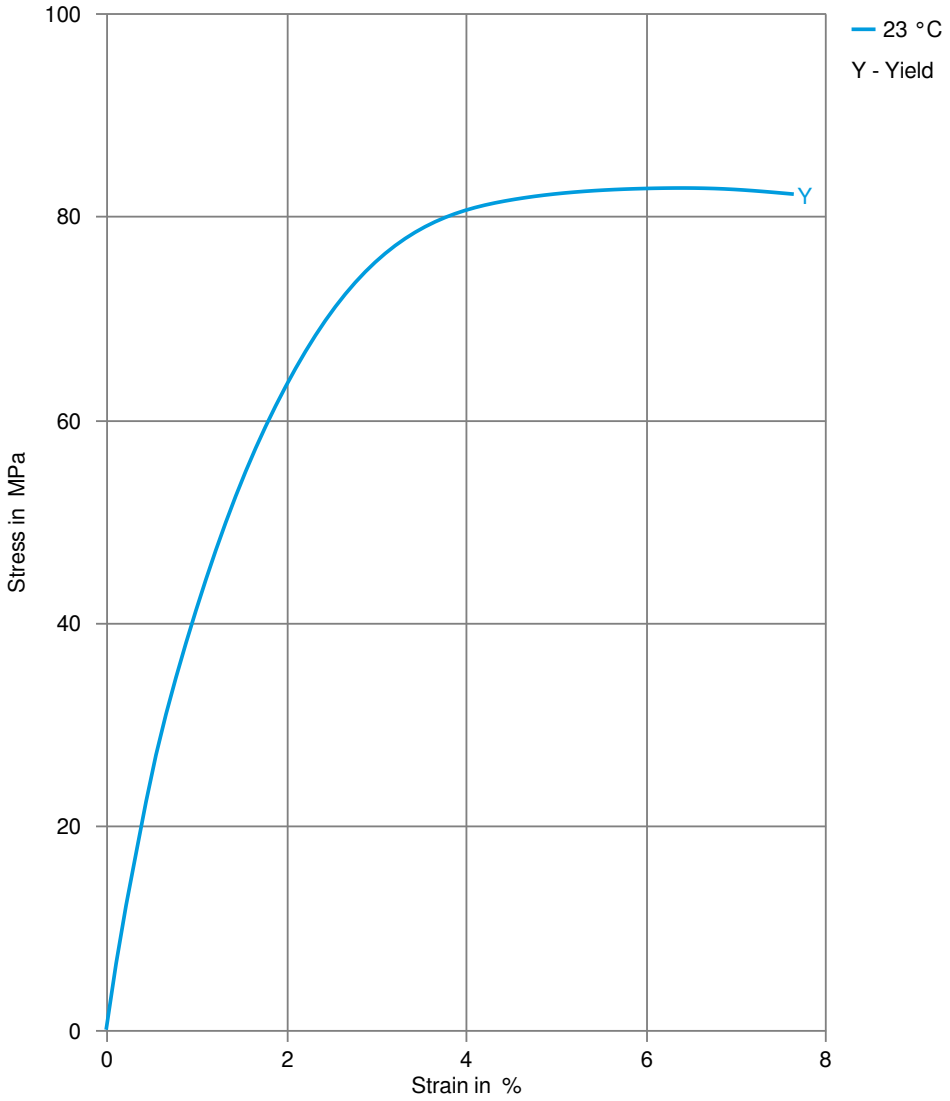
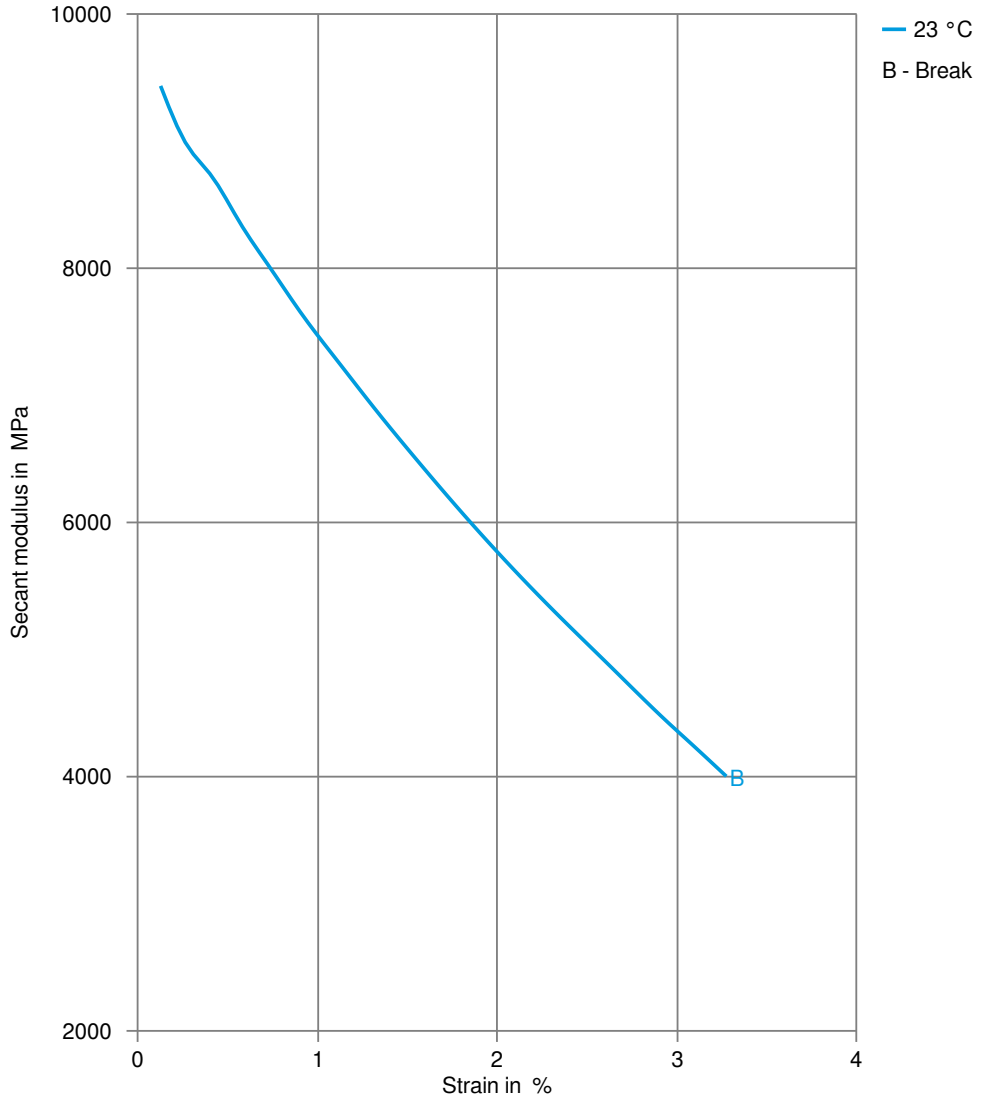
## Stress-strain (cond.)



# FRIANYL® A3 W GF25 V0E BK 9004/YG

## Secant modulus-strain (dry)



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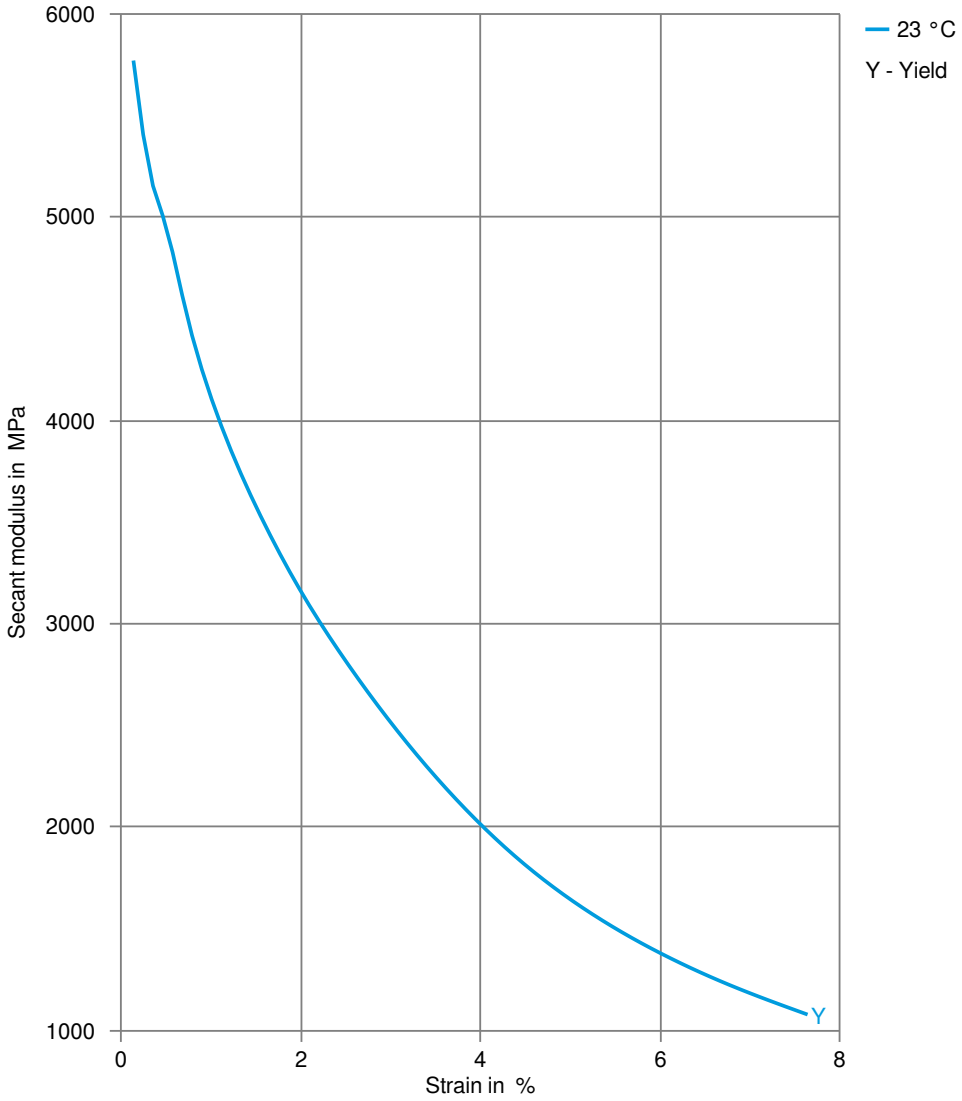
## Secant modulus-strain (cond.)



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## Processing Texts

| | |
|---|---|
| Injection molding | The following conditions apply to a standard injection moulding process. Machine temperatures: barrel 265-290°C (PA66), 235-270°C (PA6), nozzle and hot runners up to 300°C (up to 290°C products with flame retardants). Mould temperatures: 60-80°C, (80-100°C highly reinforced grades). Back pressure: typically 5-10 bar (hydraulic pressure). Temperatures exceeding 300°C and long residence time could lead to additives degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the moulded part characteristics. For further details, please refer to the document 'Instructions for injection moulding' or contact our technical support team. |
| Injection molding Preprocessing | PA materials, stocked in a moisture-proof packaging, can be processed without drying; however, it is always recomended drying the product that comes from a large package (e.g. Octabin). The moisture content suggested for the injection moulding process should be lower than 0.15%, according to the grade and to the moulded part characteristics. The materials containing flame retardants should have moisture content below 0.10%. Red phosphorous containing grades must always be dried below 0.08%. The drying time depends on the moisture content and the drying conditions. Typically 4-8 hours at 80-90°C using dehumidified air (dew point of -20°C) are suitable conditions for a starting moisture content of 0.20%-0.40%. |
| Injection molding Postprocessing | PA materials reach their final performance with a water content of about 1.5 to 3.5% by weight, depending on the type. This percentage corresponds to the point of equilibrium between the rates of absorption and desorption of moisture. After moulding, in favourable environmental conditions, a part can quickly absorbs moisture up to 0.5-1.0%, while the equilibrium will be reached during its life. A conditioning treatment can accelerate further the initial water absorption of the moulded parts. Conditioning is usually carried out in hot and humid environment (for example 50°C, 100% RH), inside climatic chambers. Slight dimensional variations (increase in volume due to the water absorbed) must be taken into account, especially in unfilled grades. Post-treatments of parts may also include the annealing (60-80°C in oven, up to four hours). This procedure can be useful to relax any internal stresses. |

## Other Approvals

Other Approvals

| OEM | Specification | Additional Information |
|---|---|---|
| VW Group* | VW50133 | * best fitting grade to PA66-5-A, not officially approved |
| Stellantis - PSA Group | PMP E&E | |

# FRIANYL® A3 W GF25 V0E BK 9004/YG

| | | |
|---|---|---|
| Renault | UB22a | BB/YG |
| Renault | UB22b | |
| Renault | UB22c | |
| Renault | UB22d | |