

FRIANYL® A3 V2XI

FRIANYL®

Designed for Electrical applications requiring self-extinguishing properties combined with ignition resistance, this grade meets the most stringent safety requirements for insulating materials for the household appliance industry.

Product information

| | | |
|--------------------------------|------------------|-------------|
| Resin Identification | PA66 | ISO 1043 |
| | FR(16+72) | |
| Part Marking Code | >PA66 FR(16+72)< | ISO 11469 |
| Continuous Service Temperature | 110 °C | IEC 60216-1 |

Rheological properties

| | | |
|------------------------------------|-------------|-----------------|
| Moulding shrinkage range, parallel | 0.8 - 1.2 % | ISO 294-4, 2577 |
| Moulding shrinkage range, normal | 0.8 - 1.2 % | ISO 294-4, 2577 |

Typical mechanical properties

| | dry/cond. | | |
|---------------------------------------|-------------------------|-------------------|--------------|
| Tensile modulus | 3550 / 1250 | MPa | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 60 / - | MPa | ISO 527-1/-2 |
| Tensile stress at break, 50mm/min | - / 180 | MPa | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 4.3 / - | % | ISO 527-1/-2 |
| Tensile strain at break, 50mm/min | - / 33 | % | ISO 527-1/-2 |
| Flexural modulus | 2700 / 1200 | MPa | ISO 178 |
| Flexural strength | 110 / 40 | MPa | ISO 178 |
| Flexural stress at 3.5% | - / 35 | MPa | ISO 178 |
| Flexural strain at failure | - / 5 | % | ISO 178 |
| Charpy impact strength, 23 °C | 65 / N | kJ/m ² | ISO 179/1eU |
| Charpy notched impact strength, 23 °C | - / 9 | kJ/m ² | ISO 179/1eA |
| Izod notched impact strength, 23 °C | 4.4 / - | kJ/m ² | ISO 180/1A |
| Izod impact strength, 23 °C | 44 / - | kJ/m ² | ISO 180/1U |
| Poisson's ratio | 0.36 / - ^[C] | | |

[C]: Calculated

Thermal properties

| | dry/cond. | | |
|--|-----------|----|----------------|
| Temperature of deflection under load, 1.8 MPa | 100 / * | °C | ISO 75-1/-2 |
| Temperature of deflection under load, 0.45 MPa | 235 / * | °C | ISO 75-1/-2 |
| Ball pressure test | 230 / - | °C | IEC 60695-10-2 |
| RTI, electrical, 0.75mm | 140 | °C | UL 746B |
| RTI, electrical, 1.5mm | 140 | °C | UL 746B |
| RTI, electrical, 3.0mm | 140 | °C | UL 746B |
| RTI, impact, 0.75mm | 90 | °C | UL 746B |
| RTI, impact, 1.5mm | 90 | °C | UL 746B |
| RTI, impact, 3.0mm | 90 | °C | UL 746B |
| RTI, strength, 0.75mm | 115 | °C | UL 746B |
| RTI, strength, 1.5mm | 115 / * | °C | UL 746B |
| RTI, strength, 3.0mm | 115 | °C | UL 746B |

FRIANYL® A3 V2XI

FRIANYL®

Flammability

| | dry/cond. | | |
|--|-----------|-------|----------------------|
| Burning Behav. at 1.5mm nom. thickn. | V-2/* | class | IEC 60695-11-10 |
| Burning Behav. at thickness h | V-2/* | class | IEC 60695-11-10 |
| Thickness tested | 0.4/* | mm | IEC 60695-11-10 |
| UL recognition | yes/* | | UL 94 |
| Glow Wire Flammability Index, 0.75mm | 850/- | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.0mm | 960/- | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 3.0mm | 960/- | °C | IEC 60695-2-12 |
| Glow Wire Ignition Temperature, 0.75mm | 875/- | °C | IEC 60695-2-13 |
| Glow Wire Ignition Temperature, 1.0mm | 900/- | °C | IEC 60695-2-13 |
| Glow Wire Ignition Temperature, 3.0mm | 900/- | °C | IEC 60695-2-13 |
| FMVSS Class | SE | | ISO 3795 (FMVSS 302) |
| Hot Wire Ignition, 0.75mm | PLC 0/* | s | UL 746A |
| Hot Wire Ignition, 1.5mm | PLC 0/* | s | UL 746A |
| Hot Wire Ignition, 3mm | PLC 0/* | s | UL 746A |

Electrical properties

| | dry/cond. | | |
|---|-----------|-------|---------|
| High Amperage Arc Ignition Category, 1.5 mm | PLC 0/* | class | UL 746A |

Physical/Other properties

| | dry/cond. | | |
|--------------------------|-----------|-------|----------------|
| Humidity absorption, 2mm | 1/* | % | Sim. to ISO 62 |
| Water absorption, 2mm | 6/* | % | Sim. to ISO 62 |
| Density | 1330/- | kg/m³ | ISO 1183 |

Injection

| | |
|---------------------------------|----------|
| Drying Recommended | yes |
| Drying Temperature | 80 °C |
| Drying Time, Dehumidified Dryer | 2 - 4 h |
| Processing Moisture Content | ≤0.1 % |
| Melt Temperature Optimum | 270 °C |
| Min. melt temperature | 265 °C |
| Max. melt temperature | 285 °C |
| Screw tangential speed | ≤0.2 m/s |
| Mold Temperature Optimum | 80 °C |
| Min. mould temperature | 70 °C |
| Max. mould temperature | 90 °C |

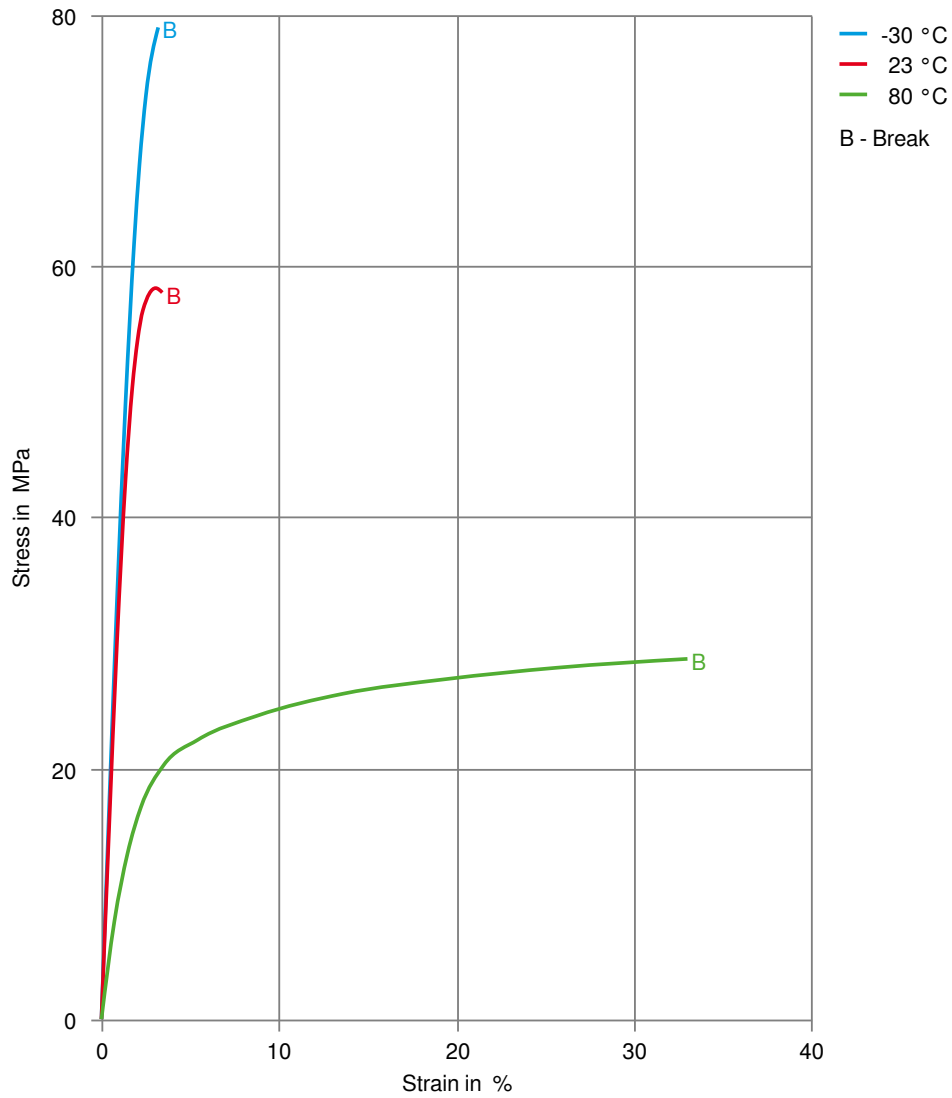
Characteristics

| | |
|-------------------------|--|
| Processing | Injection Moulding |
| Delivery form | Granules |
| Additives | Flame retardant |
| Special characteristics | Flame retardant, Heat stabilised or stable to heat |

FRIANYL® A3 V2XI

FRIANYL®

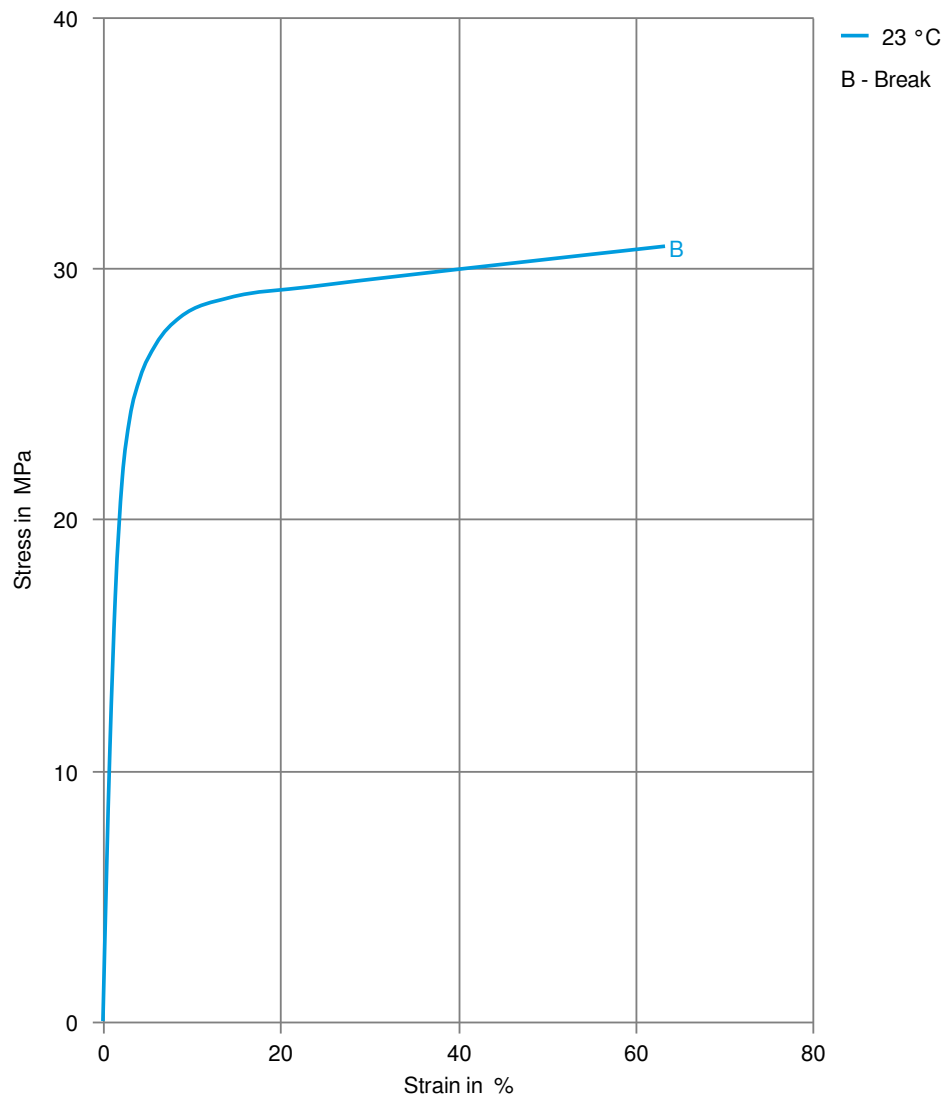
Stress-strain (dry)



FRIANYL® A3 V2XI

FRIANYL®

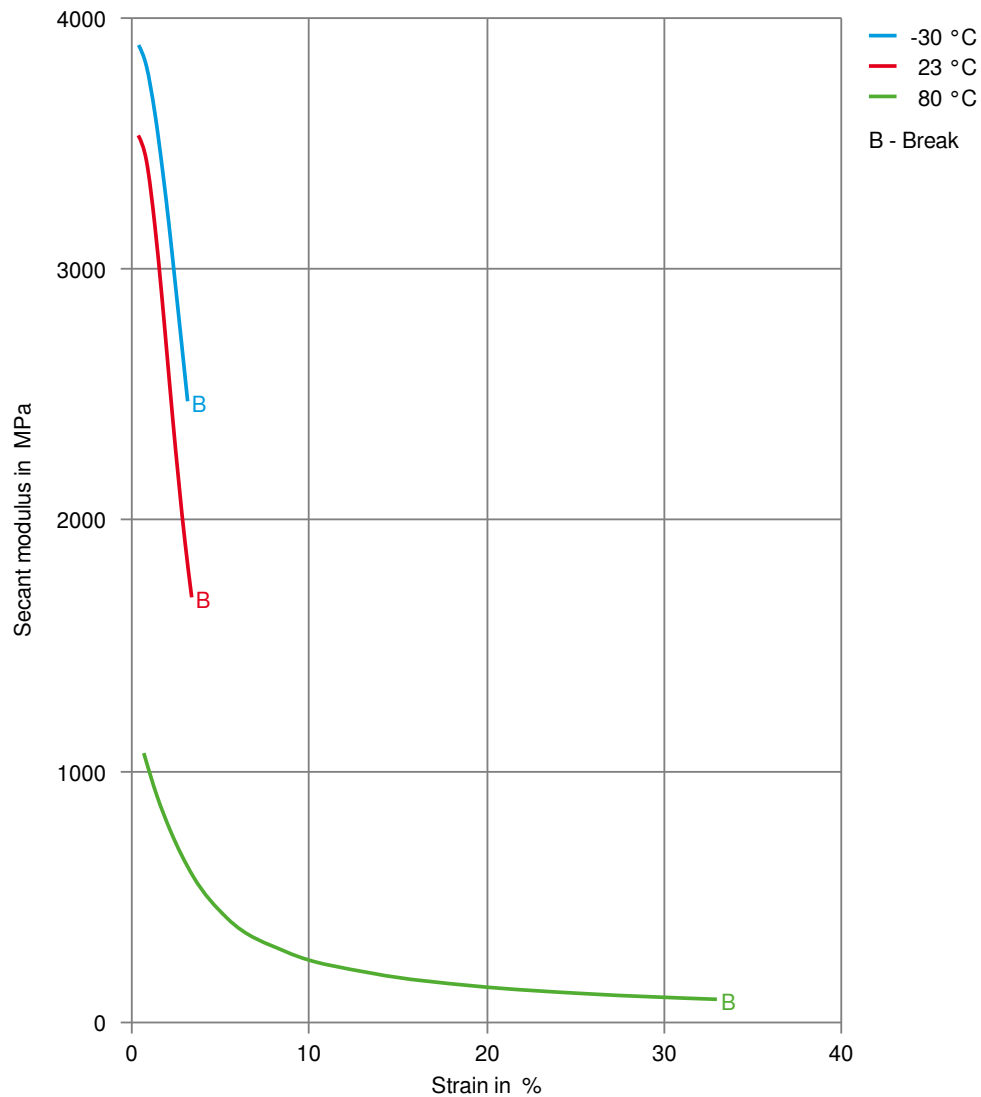
Stress-strain (cond.)



FRIANYL® A3 V2XI

FRIANYL®

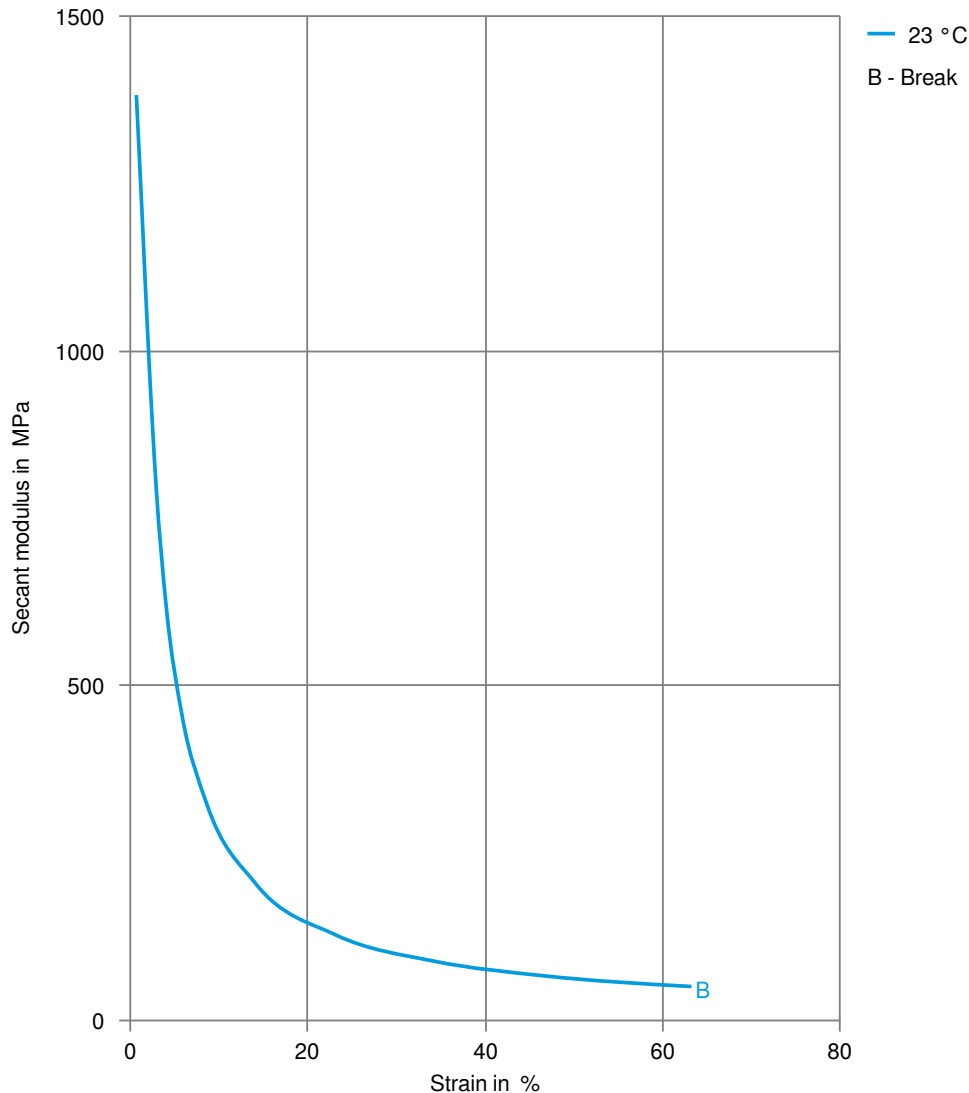
Secant modulus-strain (dry)



FRIANYL® A3 V2XI

FRIANYL®

Secant modulus-strain (cond.)



Printed: 2025-05-29

Page: 6 of 6

Revised: 2025-02-14 Source: Celanese Materials Database

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.

© 2025 Celanese or its affiliates. All rights reserved. Celanese®, registered C-ball design and all other trademarks identified herein with ®, TM, SM, unless otherwise noted, are trademarks of Celanese or its affiliates. Fortron is a registered trademark of Fortron Industries LLC.