

## TECHNICAL DATA SHEET

# RILSAN® BESNO P40 TL

## POLYAMIDE 11 PELLET

RILSAN® BESNO P40 TL is a polyamide 11 compound. It is produced from a renewable & sustainable source (castor oil). This natural grade is designed for tube extrusion. It's a market reference in the air brake (PHL) & automotive fluid transfer line applications.

**Designation :** ISO 16396 - PA11-P, EG1HL, C22-003

### TYPE

PA11-P

### MAIN APPLICATIONS

- Auto - Gasoline Lines
- Auto - Vacuum & Blow By Lines

### DELIVERY FORM

- Pellets

### TRANSFORMATION PROCESSES

- Extrusion - General
- Tube Extrusion

### ADDITIVES

- Heat Stabilized
- Light Stabilized
- Plasticizer

## MECHANICAL PROPERTIES

| PROPERTIES                                      | DRY / COND VALUE*   | UNIT  | TEST STANDARD |
|-------------------------------------------------|---------------------|-------|---------------|
| Hardness, Shore D, 15 s                         | - / 60              |       | ISO 868       |
| Charpy unnotched impact strength, 23°C (73°F)   | - / No Break        |       | ISO 179 1eU   |
| Charpy unnotched impact strength, -30°C (-22°F) | - / No Break        |       | ISO 179 1eU   |
| Nominal strain at break, 23°C (73°F), 50 mm/min | - / > 50            | %     | ISO 527-1/-2  |
| Tensile modulus, 23°C (73°F), 1 mm/min          | - / 345             | MPa   | ISO 527-1/-2  |
| Charpy notched impact strength, 23°C (73°F)     | No Break / No Break |       | ISO 179 1eA   |
| Charpy notched impact strength, -30°C (-22°F)   | - / 7               | kJ/m2 | ISO 179 1eA   |
| Flexural modulus, 23°C (73°F)                   | - / 350             | MPa   | ISO 178       |

\*DRY: Dry As Molded (DAM) if pellet / Dry if powder.  
COND: Conditionned.

## THERMAL PROPERTIES

| PROPERTIES                                 | VALUE | UNIT | TEST STANDARD  |
|--------------------------------------------|-------|------|----------------|
| Vicat softening temperature, 50N at 50°C/h | 140   | °C   | ISO 306        |
| Heat deflection temperature, 0.45 MPa      | 130   | °C   | ISO 75-1/-2    |
| Heat deflection temperature, 1.8 MPa       | 45    | °C   | ISO 75-1/-2    |
| Melting temperature, 10°C/min              | 181   | °C   | ISO 11357-1/-3 |

# RILSAN® BESNO P40 TL

## ELECTRICAL PROPERTIES

| PROPERTIES                                     | DRY / COND VALUE* | UNIT   | TEST STANDARD |
|------------------------------------------------|-------------------|--------|---------------|
| Surface resistivity, 23°C (73°F)               | - / 5.0E+11       | Ohm/sq | IEC 62631-3-2 |
| Volumic (transversal) resistivity, 23°C (73°F) | - / 1.0E+9        | Ohm.m  | IEC 62631-3-1 |
| Dielectric stress, 23°C (73°F)                 | - / 23            | kV/mm  | IEC 60243-1   |
| Relative permittivity, 100Hz                   | - / 9             |        | IEC 62631-2-1 |
| Relative permittivity, 1Mhz                    | - / 4             |        | IEC 62631-2-1 |
| Dissipation factor, 100Hz                      | - / 2440          | E-4    | IEC 62631-2-1 |
| Dissipation factor, 1Mhz                       | - / 2440          | E-4    | IEC 62631-2-1 |
| Comparative tracking index, 23°C (73°F)        | - / 600           |        | IEC 60112     |

\*DRY: Dry As Molded (DAM) if pellet / Dry if powder.  
COND: Conditionned.

## OTHER PROPERTIES

| PROPERTIES                                            | VALUE | UNIT              | TEST STANDARD |
|-------------------------------------------------------|-------|-------------------|---------------|
| Bio-based carbon content, Measured                    | 89    | %                 | ASTM D6866    |
| Water absorption, 23°C (73°F), immersion, equilibrium | 1.6   | %                 | ISO 62        |
| Specific gravity, 23°C (73°F)                         | 1.04  | g/cm <sup>3</sup> | ISO 1183-1    |

## PACKAGING

Available packaging:

- 20 kg / 44 lb bags
- 25 kg / 55 lb bags
- 454 kg / 1000 lb rigid containers
- 550 kg rigid containers

## SHELF LIFE

Two years from the date of delivery, when stored properly (sealed bags, appropriate moisture, UV protection and temperature). For any use above this limit, please refer to our technical services.

## PROCESSING CONDITIONS:

- Typical melt temperature (Min / Recommended / Max) - Injection Molding: 230°C / 250°C / 270°C (445°F / 480°F / 520°F)
- Typical mold temperature - Injection molding: 20-60°C (70-140°F)
- Drying time and temperature: 80-90°C (175-195°F) / 4-6 hours

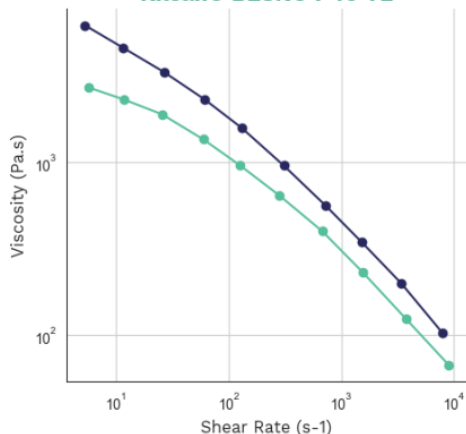
## SPECIAL CHARACTERISTICS

- Bio-based
- Low oligomers

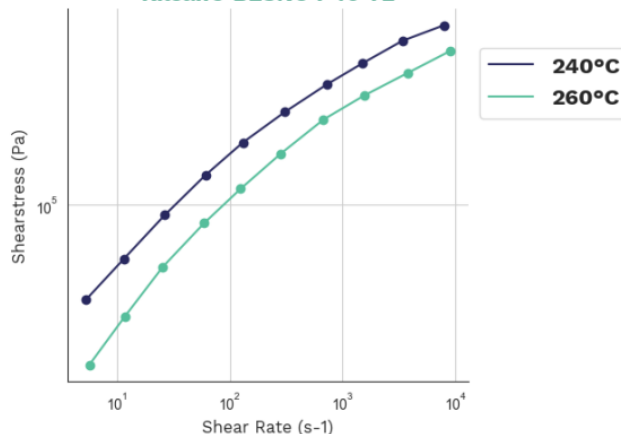
# RILSAN® BESNO P40 TL

## DIAGRAMS

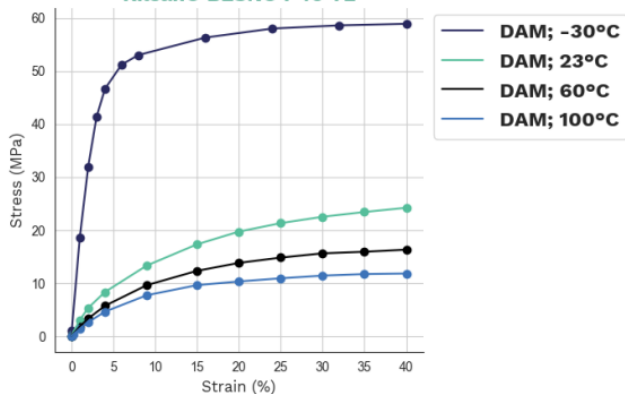
**Viscosity-shear rate**  
Rilsan® BESNO P40 TL



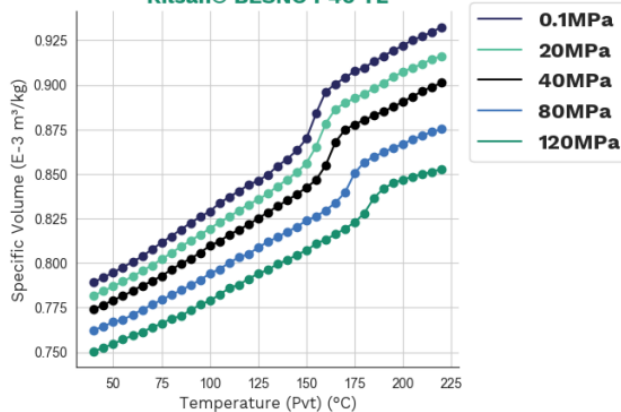
**Shearstress-shear rate**  
Rilsan® BESNO P40 TL



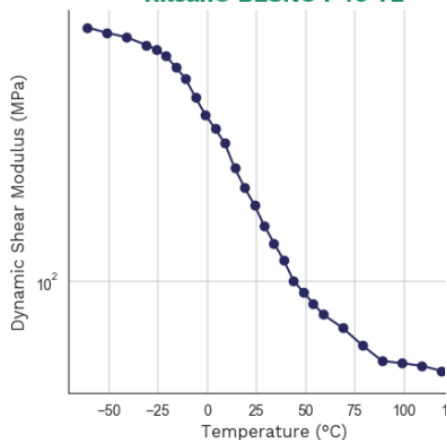
**Stress-strain**  
Rilsan® BESNO P40 TL



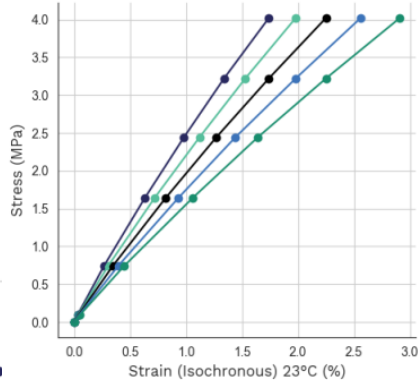
**Specific volume-temperature (pvT)**  
Rilsan® BESNO P40 TL



**Dynamic Shear modulus-tempera**  
Rilsan® BESNO P40 TL



**Stress-strain (Isochronous) 23°C**  
Rilsan® BESNO P40 TL



**Stress-strain (Isochronous) 100°C**  
Rilsan® BESNO P40 TL

