

**Grilon F 40 NL**

PA6

EMS-GRIVORY | a unit of EMS-CHEMIE AG

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	<b>3000 / 750</b>	MPa	ISO 527-1/-2

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature (10°C/min)	<b>222 / -</b>	°C	ISO 11357-1/-3

Other properties	dry / cond	Unit	Test Standard
Water absorption	<b>9 / -</b>	%	Sim. to ISO 62
Humidity absorption	<b>3 / -</b>	%	Sim. to ISO 62
Density	<b>1140 / -</b>	kg/m <sup>3</sup>	ISO 1183

Film Properties	dry / cond	Unit	Test Standard
Stress at yield (parallel)	<b>35 / -</b>	MPa	ISO 527-3
Stress at yield (normal)	<b>30 / -</b>	MPa	ISO 527-3
Strain at yield (parallel)	<b>15 / -</b>	%	ISO 527-3
Strain at yield (normal)	<b>15 / -</b>	%	ISO 527-3
Maximum strain (parallel)	<b>700 / -</b>	%	ISO 527-3
Maximum strain (normal)	<b>700 / -</b>	%	ISO 527-3
Elmendorf Tear resistance (parallel)	<b>10 / -</b>	N	ISO 6383-2
Elmendorf Tear resistance (normal)	<b>10 / -</b>	N	ISO 6383-2
Trouser Tear resistance (parallel)	<b>30 / -</b>	N/mm	ISO 6383-1
Trouser Tear resistance (normal)	<b>30 / -</b>	N/mm	ISO 6383-1
Dynamic coefficient of friction	<b>0.25 / -</b>	-	ISO 8295
Gloss, 60°	<b>100 / -</b>	-	ISO 2813
WVTR (23°C/85%r.h.)	<b>15 / -</b>	g/(m <sup>2</sup> *d)	ISO 15106-1/-2
Oxygen transmission rate (23°C/0%r.h.)	<b>25 / -</b>	cm <sup>3</sup> /(m <sup>2</sup> *d*bar)	ISO 15105-1/-2
Oxygen transmission rate (23°C/85%r.h.)	<b>50 / -</b>	cm <sup>3</sup> /(m <sup>2</sup> *d*bar)	ISO 15105-1/-2
Carbon Dioxide transm. rate (23°C/0%r.h.)	<b>80 / -</b>	cm <sup>3</sup> /(m <sup>2</sup> *d*bar)	ISO 15105-1/-2
Carbon Dioxide transm. rate (23°C/85%r.h.)	<b>250 / -</b>	cm <sup>3</sup> /(m <sup>2</sup> *d*bar)	ISO 15105-1/-2

Rheo/Phys properties	dry / cond	Unit	Test Standard
Melt volume-flow rate (MVR)	<b>25 / -</b>	cm <sup>3</sup> /10min	ISO 1133
Temperature	<b>275 / -</b>	°C	ISO 1133
Load	<b>5 / -</b>	kg	ISO 1133

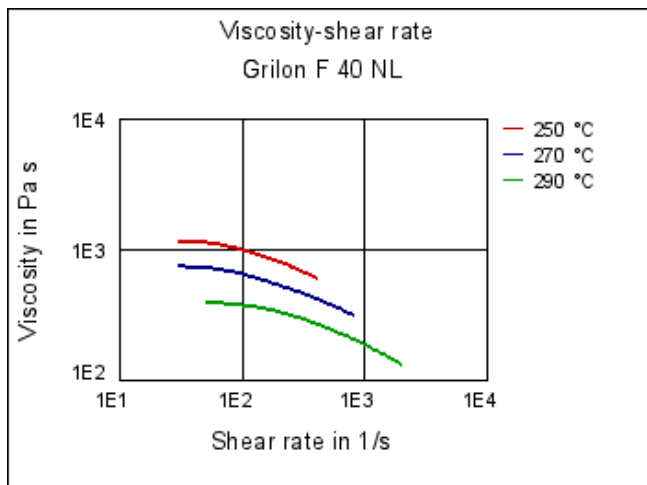
**Diagrams**

**Grilon F 40 NL**

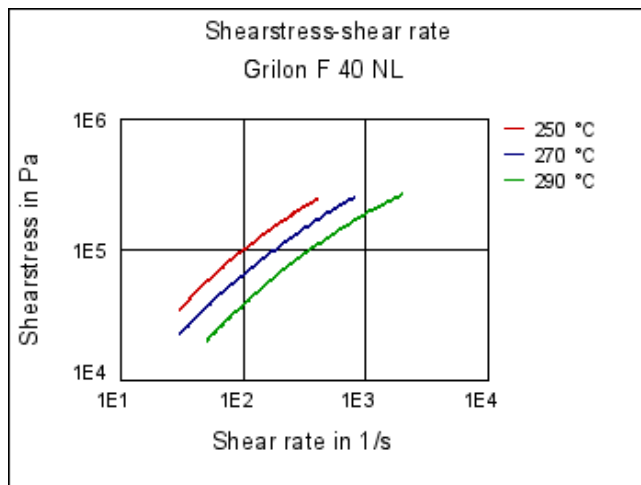
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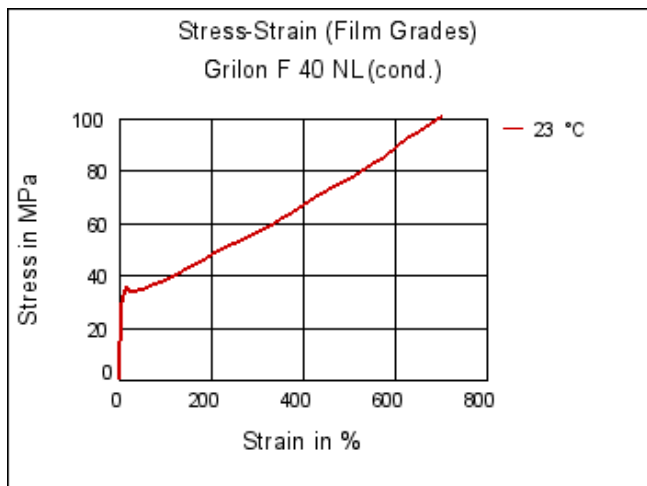
**Viscosity-shear rate**



**Shearstress-shear rate**



**Stress-Strain (Film Grades)**



**Characteristics**

**Processing**

Extrusion - cast film, Blown Film Extrusion, Other Extrusion

**Delivery form**

Granules

**Special Characteristics**

Transparent

**Regional Availability**

North America, Europe, Asia Pacific, South and Central America, Near East/Africa

**Product Attributes**

Barrier Properties, High viscosity, Nucleated

**Packaging**

Non oriented film, Oriented film, Paper coating, Tubes

**Food Contact**

EU Requirements, FDA









**Chemical Media Resistance**

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## Acids

-  Acetic Acid (5% by mass) (23°C)
-  Citric Acid solution (10% by mass) (23°C)
-  Lactic Acid (10% by mass) (23°C)
-  Hydrochloric Acid (36% by mass) (23°C)
-  Nitric Acid (40% by mass) (23°C)
-  Sulfuric Acid (38% by mass) (23°C)
-  Sulfuric Acid (5% by mass) (23°C)
-  Chromic Acid solution (40% by mass) (23°C)




## Bases

-  Sodium Hydroxide solution (35% by mass) (23°C)
-  Sodium Hydroxide solution (1% by mass) (23°C)
-  Ammonium Hydroxide solution (10% by mass) (23°C)

## Alcohols

-  Isopropyl alcohol (23°C)
-  Methanol (23°C)
-  Ethanol (23°C)


## Hydrocarbons

-  n-Hexane (23°C)
-  Toluene (23°C)
-  iso-Octane (23°C)





## Ketones

-  Acetone (23°C)










## Ethers

-  Diethyl ether (23°C)

## Mineral oils

-  SAE 10W40 multigrade motor oil (23°C)
-  SAE 10W40 multigrade motor oil (130°C)
-  SAE 80/90 hypoid-gear oil (130°C)
-  Insulating Oil (23°C)

## Standard Fuels

-  ISO 1817 Liquid 1 (60°C)
-  ISO 1817 Liquid 2 (60°C)
-  ISO 1817 Liquid 3 (60°C)
-  ISO 1817 Liquid 4 (60°C)
-  Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
-  Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
-  Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
-  Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
-  Diesel fuel (pref. ISO 1817 Liquid F) (>90°C)

## Salt solutions

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- ☹️ Sodium Chloride solution (10% by mass) (23°C)
- 🚫 Sodium Hypochlorite solution (10% by mass) (23°C)
- ☹️ Sodium Carbonate solution (20% by mass) (23°C)
- ☹️ Sodium Carbonate solution (2% by mass) (23°C)
- ☹️ Zinc Chloride solution (50% by mass) (23°C)

Other

- ☹️ Ethyl Acetate (23°C)
  - 🚫 Hydrogen peroxide (23°C)
  - ☹️ DOT No. 4 Brake fluid (130°C)
  - ☹️ Ethylene Glycol (50% by mass) in water (108°C)
  - ☹️ 1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C)
  - ☹️ 50% Oleic acid + 50% Olive Oil (23°C)
  - ☹️ Water (23°C)
  - ☹️ Deionized water (90°C)
  - 🚫 Phenol solution (5% by mass) (23°C)
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