Product Information

VESTAMID® E40-S3

HEAT- AND LIGHT-STABILIZED POLYAMIDE 12 ELASTOMER FOR MOLDING OF SPORT SHOE SOLES

VESTAMID® E40-S3 is a PA 12 elastomer consisting of PA 12 segments and softening segments. The material is free of volatile or migrating plasticizer.

The VESTAMID® E represent thermoplastic elastomers generically characterized as polyether block copolyamides (PEBA) consisting of PA 12 and polyether segments.

VESTAMID® E40-S3 is especially developed for sport shoe soles. It has good impact strength at low temperatures.

VESTAMID® E40-S3 is supplied as spherical pellets in moisture-proof packaging, ready for processing.

The process temperatures should be within a range of 170°C – 210°C.
Pigmentation may affect values.

Inside the original and undamaged packaging, the product has a shelf life of at least 2 years when stored in dry rooms at temperatures not exceeding 30°C.

The results shown have been generated from a low number of production lots. Therefore, they are preliminary and not yet the result of a statistical evaluation. Therefore they must not be used to establish specifications.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM
OR VISIT OUR PRODUCT AT WWW.VESTAMID.COM

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile Modulus	**87 / -**	MPa	ISO 527
Tensile Strength	**17 / -**	MPa	ISO 527
Stress at 50% strain	**9 / -**	MPa	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	*** / 80**	MPa	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	*** / 60**	MPa	ISO 899-1
Charpy impact strength, +23°C	**N / N**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**N / N**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	**N / N**	kJ/m²	ISO 179/1eA

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Charpy notched impact strength, -30°C	**N / N**	kJ/m²	ISO 179/1eA
Tensile-impact strength, notched, atN +23°C	**160 / 210**	kJ/m²	ISO 8256/1

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**150 / ***	°C	ISO 11357-1/-3
Glass transition temperature	**32 / ***	°C	ISO 11357-1/-2
Temp. of deflection under load B, 0.45 MPa	**55 / ***	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**125 / ***	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**60 / ***	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**240 / ***	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**210 / ***	E-6/K	ISO 11359-1/-2

Physical properties	**dry / cond**	**Unit**	**Test Standard**
Water absorption	**1 / ***	%	Sim. to ISO 62
Humidity absorption	**0.4 / ***	%	Sim. to ISO 62
Density	**1010 / 1020**	kg/m³	ISO 1183
Shore D hardness	**40**[b] **/ -**	-	ISO 7619-1
Compression Set under constant strain, 23°C	**32 / -**	%	ISO 815
Compression Set under constant strain, 70°C	**47 / -**	%	ISO 815
Compression Set under constant strain, 100°C	**84 / -**	%	ISO 815

b: 3 seconds

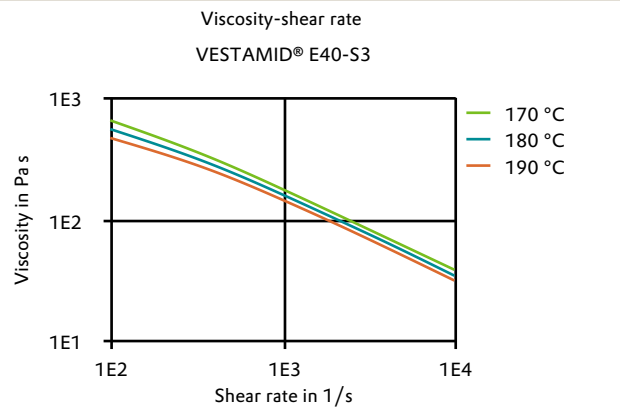
Burning Behav.	**dry / cond**	**Unit**	**Test Standard**
YellowCard available	yes **/ ***	-	-
Yellow Card available	yes **/ ***	-	-
Burning behav. at 1.5 mm nom. thickn.	**HB / ***	class	IEC 60695-11-10
Thickness tested	**1.5 / ***	mm	-
Yellow Card available	yes **/ ***	-	-

Electrical properties	dry / cond	Unit	Test Standard
Relative permittivity, 100Hz	**7.5 / 9.5**	-	IEC 62631-2-1
Relative permittivity, 1MHz	**4.9 / 5.5**	-	IEC 62631-2-1
Dissipation factor, 100Hz	**700 / 3000**	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	**1200 / 1200**	E-4	IEC 62631-2-1
Volume resistivity, ρV	**2E9 / 3E8**	Ohm*m	IEC 62631-3-1
Surface resistivity, σE	*** / 2E13**	Ohm	IEC 62631-3-2
Electric strength, AC, S20/S20	**- / 36**	kV/mm	IEC 60243-1
Electric strength, AC, S20/P50	**35 / -**	kV/mm	Sim. to IEC 60243-1

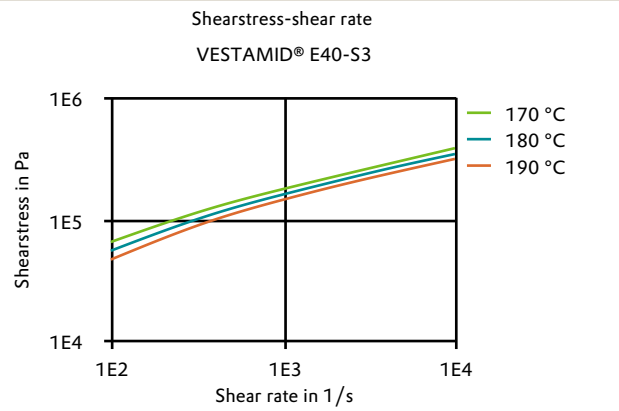
Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**40 / ***	cm^3/10min	ISO 1133
Temperature	**240 / ***	°C	-
Load	**2.16 / ***	kg	-
Molding shrinkage, parallel	**0.5 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**1.1 / ***	%	ISO 294-4, 2577
Mold temperature	**35 / ***	°C	-
Melt temperature	**200 / ***	°C	-

Diagrams

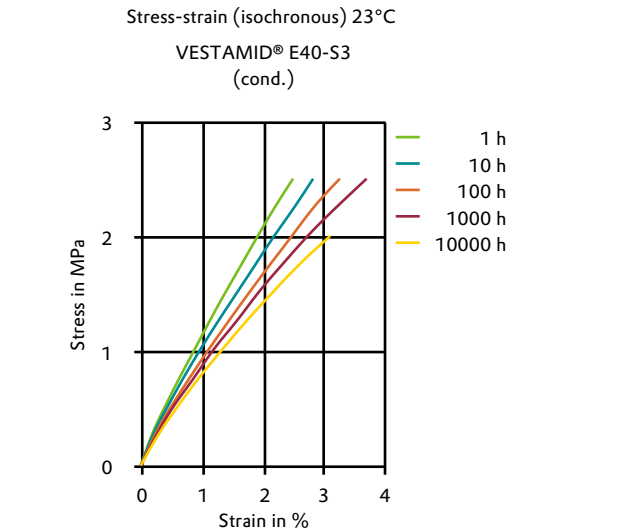
Viscosity-shear rate



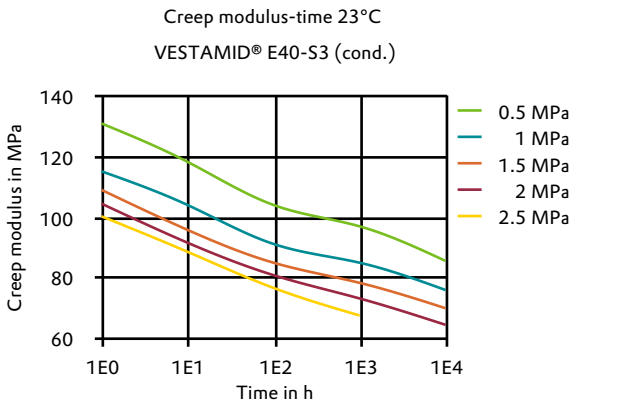
Shearstress-shear rate



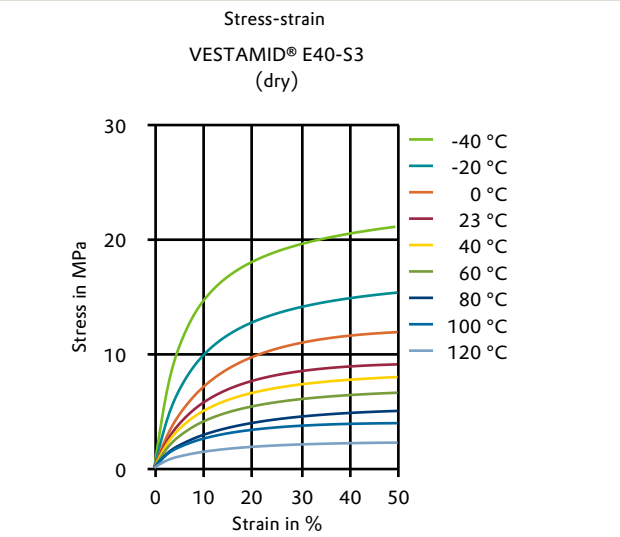
Stress-strain (isochronous) 23°C



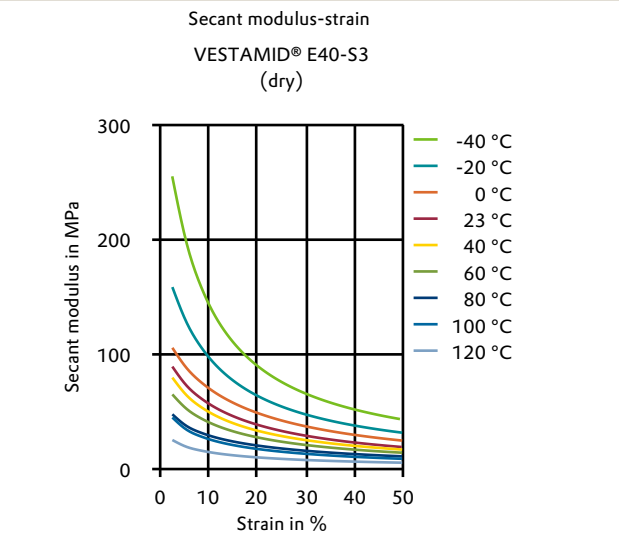
Creep modulus-time 23°C



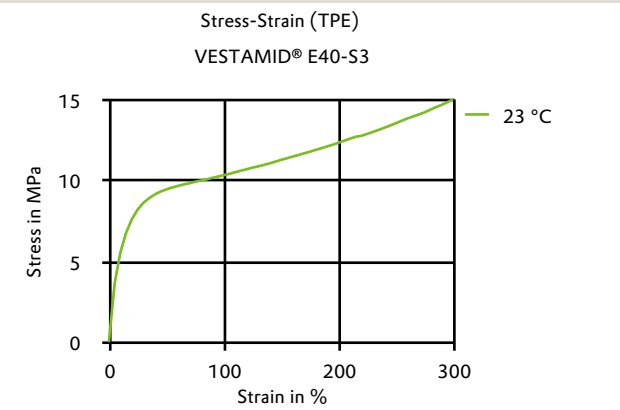
Stress-strain



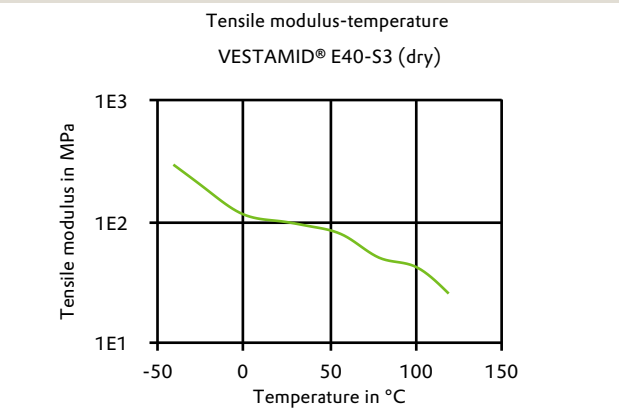
Secant modulus-strain



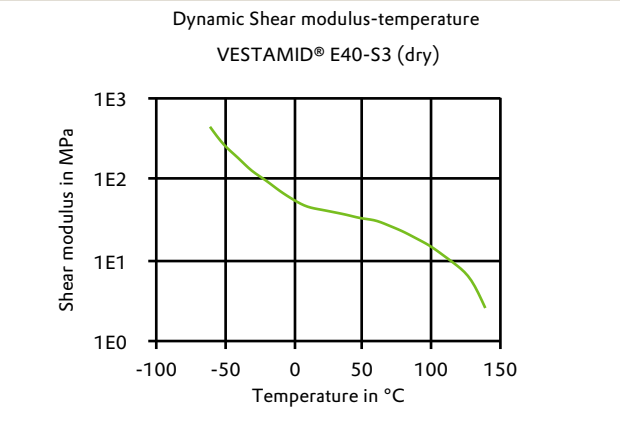
Stress-Strain (TPE)



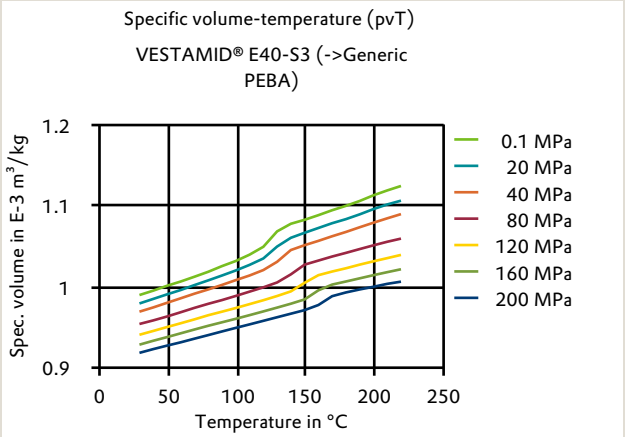
Tensile modulus-temperature



Dynamic Shear modulus-temperature



Specific volume-temperature (pvT)



Characteristics

Key Feature, Industrial Sector
Instustry and Building Construction, Sports and Lifestyle

Key Feature, Processing
Injection Molding, Extrusion

Key Feature, Resistance to
Heat (Thermal Stability), U.V. / Light / Weathering

Processing
Profile Extrusion

Special Characteristics
Light-stabilized, U.V. stabilized, Heat-stabilized

Color
Natural Color

Additives
Plasticizer, Light stabilizer, Heat stabilizer

Delivery form
Pellets, Granules

Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass) (23°C)
- ✔ Citric Acid solution (10% 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)

Salt solutions

✔	Sodium Chloride solution (10% by mass) (23°C)
✔	Sodium Carbonate solution (20% by mass) (23°C)
✔	Sodium Carbonate solution (2% by mass) (23°C)

Other

✔	Ethyl Acetate (23°C)
✔	Hydrogen peroxide (23°C)
✔	Water (23°C)

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