

VESTAMID® E E40-S3

Polyamide 12
Evonik Industries AG

Message:

Typical Applications: noiseless gears, seals, functional elements of sports shoes, processing aids in the extrusion of thermoplastic polyurethanes, films
PA 12 elastomers, the most important subgroup of polyamide elastomers, belong to the increasingly important material class of thermoplastic elastomers (TPE). Because of their excellent properties, they are indispensable in many applications.
PA 12 elastomers are block copolymers consisting of PA 12 segments and polyether segments. PA 12-rich products have the major properties of PA 12, while the elastomer characteristics become more apparent with increasing polyether content. That is the polymers become more flexible, with higher impact strength at cold temperatures.

General Information	
UL YellowCard	E100211-479520
Additive	Heat Stabilizer
	UV Stabilizer
Features	Block Copolymer
	Excellent Printability
	Good Chemical Resistance
	Good Colorability
	Good Processability
	Heat Stabilized
	High Elasticity
	Light Stabilized
	Low Density
	Low Temperature Impact Resistance
	Solvent Resistant
Uses	Film
	Footwear
	Gears
	Seals
	Sporting Goods
Appearance	Black
	Colors Available
	Natural Color
Forms	Granules
Processing Method	Extrusion
	Injection Molding

Physical	Nominal Value	Unit	Test Method
Density	1.01	g/cm ³	ISO 1183
Molding Shrinkage ¹			ISO 294-4
Across Flow	0.70 to 1.3	%	
Flow	0.60 to 0.90	%	
Water Absorption (Saturation, 23°C)	1.0	%	ISO 62
Viscosity Number	190	cm ³ /g	ISO 307
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D)	40		ISO 868
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	80.0	MPa	ISO 527-2
Tensile Stress			ISO 527-2
--	17.0	MPa	
50% Strain	9.50	MPa	
Tensile Strain (Break)	> 200	%	ISO 527-2
Tensile Creep Modulus (1000 hr)	60.0	MPa	ISO 899-1
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-30°C	No Break		
23°C	No Break		
Charpy Unnotched Impact Strength			ISO 179/1eU
-30°C	No Break		
23°C	No Break		
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature (0.45 MPa, Unannealed)	55.0	°C	ISO 75-2/B
Vicat Softening Temperature			
--	125	°C	ISO 306/A
--	60.0	°C	ISO 306/B
CLTE			ISO 11359-2
Flow : 23 to 55°C	2.4E-4	cm/cm/°C	
Transverse : 23 to 55°C	2.1E-4	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	1.0E+13	ohms	IEC 60093
Volume Resistivity	1.0E+11	ohms · cm	IEC 60093
Electric Strength	35	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
23°C, 100 Hz	7.50		
23°C, 1 MHz	4.90		
Dissipation Factor			IEC 60250
23°C, 100 Hz	0.070		
23°C, 1 MHz	0.12		

Comparative Tracking Index (Solution A)	600	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.60 mm)	HB		UL 94
Injection	Nominal Value	Unit	
Suggested Max Moisture	0.10	%	
Processing (Melt) Temp	170 to 210	°C	
Mold Temperature	20.0 to 40.0	°C	
Extrusion	Nominal Value	Unit	
Suggested Max Moisture	0.10	%	
Melt Temperature	170 to 210	°C	
NOTE			

1. determined on 3mm sheets with film gate at rim, mold temp. 80°C

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