

VESTAMID® E E47-S3

Polyamide 12
Evonik Industries AG

Message:

Typical Applications: sports shoe soles, packaging films, non-skid surfaces, sports glasses, protective goggles
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			
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		
Uses	Film		
	Footwear		
	Packaging		
	Sporting Goods		
Appearance	Black		
	Colors Available		
	Natural Color		
Forms	Granules		
Processing Method	Extrusion		
	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Density	1.02	g/cm ³	ISO 1183

Molding Shrinkage ¹			ISO 294-4
Across Flow	0.90 to 1.5	%	
Flow	0.60 to 1.0	%	
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)	47		ISO 868
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	120	MPa	ISO 527-2
Tensile Stress			ISO 527-2
--	23.0	MPa	
50% Strain	12.0	MPa	
Tensile Strain (Break)	> 200	%	ISO 527-2
Tensile Creep Modulus (1000 hr)	90.0	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	65.0	°C	ISO 75-2/B
1.8 MPa, Unannealed	45.0	°C	ISO 75-2/A
Vicat Softening Temperature			
--	140	°C	ISO 306/A
--	70.0	°C	ISO 306/B
CLTE			ISO 11359-2
Flow : 23 to 55°C	2.3E-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	37	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
23°C, 100 Hz	8.50		
23°C, 1 MHz	4.70		
Dissipation Factor			IEC 60250
23°C, 100 Hz	0.12		
23°C, 1 MHz	0.13		
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	180 to 220	°C	
Mold Temperature	20.0 to 40.0	°C	
Extrusion	Nominal Value	Unit	
Suggested Max Moisture	0.10	%	
Melt Temperature	180 to 220	°C	
NOTE			

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

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

