

**Grilamid TR 90 NZ**  
PAMACM12-I

EMS-GRIVORY | a unit of EMS-CHEMIE AG

**Product Texts**

Product designation according to ISO 1874:

PA MACM12 - HI, GT, 14-020

Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	- / <b>1300</b>	MPa	ISO 527-1/-2
Yield stress	- / <b>50</b>	MPa	ISO 527-1/-2
Yield strain	- / <b>7</b>	%	ISO 527-1/-2
Stress at break	- / <b>45</b>	MPa	ISO 527-1/-2
Strain at break	- / <b>&gt;50</b>	%	ISO 527-1/-2
Charpy impact strength (+23°C)	- / <b>N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength (-30°C)	- / <b>N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C)	- / <b>22</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength (-30°C)	- / <b>15</b>	kJ/m <sup>2</sup>	ISO 179/1eA

Mechanical properties (TPE)	dry / cond	Unit	Test Standard
Ball indentation hardness	- / <b>90</b>	MPa	ISO 2039-1

Thermal properties	dry / cond	Unit	Test Standard
Glass transition temperature (10°C/min)	<b>155 / -</b>	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	<b>110 / -</b>	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	<b>135 / -</b>	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	<b>90 / -</b>	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	<b>90 / -</b>	E-6/K	ISO 11359-1/-2
Max. usage temperature (long term)	<b>80 - 100</b>	°C	ISO 2578
Max. usage temperature (short term)	<b>120</b>	°C	EMS

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	- / <b>1E11</b>	Ohm*m	IEC 60093
Surface resistivity	- / <b>1E12</b>	Ohm	IEC 60093
Electric strength	- / <b>34</b>	kV/mm	IEC 60243-1
Comparative tracking index	- / <b>600</b>	-	IEC 60112

Other properties	dry / cond	Unit	Test Standard
Water absorption	<b>3 / -</b>	%	Sim. to ISO 62
Humidity absorption	<b>1.5 / -</b>	%	Sim. to ISO 62
Density	<b>1000 / -</b>	kg/m <sup>3</sup>	ISO 1183

Rheo/Phys properties	dry / cond	Unit	Test Standard
Molding shrinkage (parallel)	<b>0.9 / -</b>	%	ISO 294-4, 2577
Molding shrinkage (normal)	<b>0.9 / -</b>	%	ISO 294-4, 2577

**Characteristics**

**Processing**

Injection Molding, Other Extrusion

**Product Attributes**

Hydrolysis resistant, Co Polyamide, Transparent Polyamide

**Delivery form**

Granules

**Automotive**

Compressed air systems, Fuel systems, Interior, Exterior

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**Additives**

Lubricants

**Special Characteristics**

High impact or impact modified, Improved UV resistance (outdoor use), Transparent

**Regional Availability**

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

**Electricals & Electronics**

Electrical appliances, Electrical equipment, Connectors, Energy distribution, Lighting, Mobile phones and other portable devices

**Industry & Consumer goods**

Housewares, Hydraulics & Pneumatics, Mechanical Engineering, Medical devices

**Optics**

Spectacle frames

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