

# NAS® ECO 21

Styrene Methyl Methacrylate (SMMA)

## TECHNICAL DATASHEET

### DESCRIPTION

NAS® ECO 21 is a styrene acrylic copolymer that can be used in a variety of applications demanding a strong, stiff water-clear plastic resin with excellent thermal stability. NAS® ECO 21 BC70 or BB70 are ISCC compliant products leading to a substitution of fossil source styrene with ISCC certified bio-circular or bio-attributed styrene respectively.

### FEATURES

- High surface quality
- Sterilisable(ETO,NO2, Irradiation)
- Transparency
- Low density
- Water clear appearance

### APPLICATIONS

- Water filters
- Point-of-purchase displays
- Food contact applications
- Medical devices
- Cosmetic packaging

Property, Test Condition	Standard	Unit	Values
<b>Sustainability Properties</b>			
Attributed Content of ISCC-certified Bio Sources (min.)	-	-	70
<b>Rheological Properties</b>			
Melt Flow Rate, 200 °C/5 kg	ASTM D 1238	g/10 min	1.9
Melt Volume Rate, 220 °C/10 kg	ISO 1133	cm <sup>3</sup> /10 min	24
<b>Mechanical Properties</b>			
Izod Notched Impact Strength, 23 °C (73 °F)	ASTM D 256	ft-lb/in	0.4
Tensile Stress at Yield, 23 °C	ASTM D 638	psi	8400
Tensile Modulus	ASTM D 638	psi x 10 <sup>3</sup>	470
Elongation, Failure	ASTM D 638	%	2.1
Flexural Strength, 23 °C	ASTM D 790		14100
Flexural Modulus, 23 °C	ASTM D 790	psi x 10 <sup>3</sup>	450
Hardness, Rockwell	ASTM D 785	M scale	70
Charpy Notched Impact Strength, 23° C	ISO 179	kJ/m <sup>2</sup>	1.5
Charpy Unnotched, 23 °C	ISO 179	kJ/m <sup>2</sup>	12
<b>Thermal Properties</b>			

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Vicat Softening Temperature, B/1 ( 120 °C/h, 10N)	ASTM D 1525	°F	222
<b>Optical Properties</b>			
Refractive Index, Sodium D Line	ASTM D 542	-	1.57
Light Transmission at 550 nm	ASTM D 1003	%	91.3
Haze	ASTM D 1003	%	0.3
<b>Processing</b>			
Melt Temperature Range	-	°F	410 - 470
Mold Temperature Range	-	°F	90 - 140
Rear Temperature Range	-	°F	360 - 420
Middle Temperature Range	-	°F	390 - 450
Front Temperature Range	-	°F	410 - 470
Drying Temperature	-	°F	180
Drying Time	-	h	2
Max Service Temperature	-	°F	500