

# NAS 21

Styrene Methyl Methacrylate (SMMA)

## TECHNICAL DATASHEET

### DESCRIPTION

NAS® 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.

### FEATURES

- Sparkling clarity
- Low density
- Ease of processing
- Gamma & ETO sterilizable
- Meets USP XXIII specifications for Class VI plastics
- UL 94 HB approved

### APPLICATIONS

- Point of purchase displays
- Reusable drinkware
- Medical devices
- Toys
- Office accessories
- Appliances

Property, Test Condition	Standard	Unit	Values
<b>Rheological Properties</b>			
Melt Flow Rate, 200 °C/5 kg	ASTM D 1238	g/10 min	1.9
<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
<b>Thermal Properties</b>			
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

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<b>Other Properties</b>			
Density (ASTM )	ASTM D 792	g/cm <sup>3</sup>	1.08
Water Absorption, Saturated at 23 °C	ASTM D 570	%	0.1
<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