

# NAS 30

Styrene Methyl Methacrylate (SMMA)

## TECHNICAL DATASHEET

### DESCRIPTION

NAS® 30 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

### APPLICATIONS

- Cosmetic jars and lids
- Reusable drinkware
- Medical devices
- Toys
- Office accessories

Property, Test Condition	Standard	Unit	Values
<b>Rheological Properties</b>			
Melt Volume Rate 220 °C/10 kg	ISO 1133	cm <sup>3</sup> /10 min	30
<b>Mechanical Properties</b>			
Izod Notched Impact Strength, 23 °C	ISO 180/A	kJ/m <sup>2</sup>	2.5
Izod Unnotched Impact Strength	ISO 180	kJ/m <sup>2</sup>	12
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
Tensile Stress at Yield, 23° C	ISO 527	MPa	60
Tensile Strain at Break, 23° C	ISO 527	%	2.5
Tensile Modulus	ISO 527	MPa	3300
Flexural Strength	ISO 178	MPa	100
Flexural Modulus	ISO 178	MPa	3400
Hardness, Rockwell		M scale	75
Hardness, Ball Indentation	ISO 2039-1	MPa	169
<b>Thermal Properties</b>			
Vicat Softening Temperature VST/B/50 (50N, 50°C/h)	ISO 306	°C	98
Vicat Softening Temperature, B/1 ( 120°C/h, 10N)	ASTM D 1525	°C	102

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Property, Test Condition	Standard	Unit	Values
Heat Distortion Temperature, B (0.45 MPa)	ISO 75	°C	90
Heat Deflection Temperature A; (annealed 4 h/80 °C; 1.8 MPa)	ISO 75	°C	80
<b>Optical Properties</b>			
Refractive Index, Sodium D Line	ISO 489	-	1.56
Light Transmission at 550 nm	ASTM D 1003	%	91.4
Haze	ASTM D 1003	%	0.3
<b>Other Properties</b>			
Density	ISO 1183	kg/m <sup>3</sup>	1090
Moisture Absorption, Equilibrium 23°C/50% RH	ISO 62	%	0.15
<b>Processing</b>			
Linear Mold Shrinkage	ISO 294-4	%	0.2 to 0.6
Melt Temperature Range	ISO 294	°C	200 - 240
Mold Temperature Range	ISO 294	°C	30 - 60
Rear Temperature Range		°C	180 - 210
Middle Temperature Range		°C	200 - 230
Front Temperature Range		°C	210 - 240
Injection Velocity	ISO 294	mm/s	Slow to Moderate
Drying Temperature		°C	80
Drying Time		h	2
Max Service Temperature		°C	260

Typical values for uncolored products

## SUPPLY FORM

Styrolution NAS resins are available in bulk , 25kg bags or octabin cartons.

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## PROCESSING

NAS is a low moisture absorption copolymer and in many instances processes readily without pre-drying. There are combinations of conditions that require the product to be dried, such as high humidity and heavy section molding. Two hours at 82 °C (180 °F) is adequate for most applications. Dehumidifying type driers are recommended. To obtain maximum clarity and gloss from this product, it is necessary to have a highly polished mold. Design of gates, runners and sprues can be patterned after standard practice for high-heat polystyrene. All mold surfaces must be temperature controlled at 54 °C (130 °F) for optimum clarity and surface gloss. For optimum clarity, machine cylinders, barrels, screws, valves, etc. should be thoroughly cleaned before processing. Contamination by other materials will cause streaking or haze.

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## PRODUCT SAFETY

During processing of NAS small quantities of styrene monomer may be released into the atmosphere. At styrene vapor concentrations below 20ppm no negative effects on health are expected. In our experience, the concentration of styrene does not exceed 1 ppm in well ventilated workplaces - that is where five to eight air changes per hour are made.

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