NAS® 90

Styrene Methyl Methacrylate Acrylic Copolymer

Styrolution

Message:

NAS 90 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.

General Information			
UL YellowCard	E55776-245683		
Features	Copolymer Ethylene Oxide Sterilizable Good Processability Good Stiffness Good Thermal Stability High Clarity Low Density Radiation Sterilizable		
Uses	Appliances Cups Displays Medical Devices Toys		
Agency Ratings	USP XXIII, Class VI		
Appearance	Clear/Transparent		
Processing Method	Injection Molding		
Physical	**Nominal Value**	**Unit**	**Test Method**
Specific Gravity	1.07	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	1.5	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (220°C/10.0 kg)	16.0	cm³/10min	ISO 1133
Molding Shrinkage			
Flow	0.20 to 0.60	%	ASTM D955
--	0.20 to 0.60	%	ISO 294-4
Water Absorption			
Saturation, 23°C	0.15	%	ASTM D570
Equilibrium, 23°C, 50% RH	0.10	%	ISO 62
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness (M-Scale)	65		ASTM D785
Ball Indentation Hardness	168	MPa	ISO 2039-1

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
--	3380	MPa	ASTM D638
--	3100	MPa	ISO 527-2
Tensile Strength			
Yield, 23°C	55.8	MPa	ASTM D638
Yield, 23°C	60.0	MPa	ISO 527-2
Tensile Elongation			
Break	2.1	%	ASTM D638
Break, 23°C	2.3	%	ISO 527-2
Flexural Modulus			
--	3380	MPa	ASTM D790
--	3200	MPa	ISO 178
Flexural Strength	100	MPa	ASTM D790, ISO 178
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength (23°C)	1.5	kJ/m^2	ISO 179
Charpy Unnotched Impact Strength (23°C)	13	kJ/m^2	ISO 179
Notched Izod Impact			
23°C	21	J/m	ASTM D256
23°C	2.5	kJ/m^2	ISO 180/A
Unnotched Izod Impact Strength	14	kJ/m^2	ISO 180
Thermal	**Nominal Value**	**Unit**	**Test Method**
Heat Deflection Temperature			
0.45 MPa, Unannealed	83.0	°C	ISO 75-2/B
1.8 MPa, Annealed	75.0	°C	ISO 75-2/A
Vicat Softening Temperature			
--	97.2	°C	ASTM D1525 [1]
--	90.0	°C	ISO 306/B50
Maximum Service Temperature	260	°C	
Optical	**Nominal Value**	**Unit**	**Test Method**
Refractive Index [2]	1.560		ASTM D542, ISO 489
Transmittance (550 nm)	91.7	%	ASTM D1003
Haze	0.30	%	ASTM D1003
Injection	**Nominal Value**	**Unit**	
Drying Temperature	80.0	°C	
Drying Time	2.0	hr	
Rear Temperature	180 to 210	°C	
Middle Temperature	200 to 230	°C	
Front Temperature	210 to 240	°C	
Processing (Melt) Temp	200 to 240	°C	
Mold Temperature	30.0 to 60.0	°C	
Injection Rate	Slow-Moderate		

NOTE	
1.	Rate B (120°C/h), Loading 1 (10 N)
2.	Sodium D Line

Recommended distributors for this material

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