



**QUADRA**

Quadraplast™

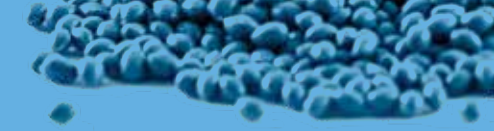
AROMATIC RIGID POLYURETHANE



**BIOMERICS**

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# TECHNICAL DATA & PROCESS GUIDE



## PRODUCT

Quadraplast

## CHEMISTRY

Aromatic Rigid TPU

## APPLICATIONS

Injection Molding

## CHARACTERISTICS

Rigid, Toughness, dimensional stability, biocompatibility, and chemical resistance.



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## QUADRAPLAST

Quadraplast™ is a family of aromatic rigid thermoplastic polyurethanes that are designed for injection molded biostable applications such as connectors, fittings, luers, and hubs. Quadraplast offers a unique combination of toughness, dimensional stability, biocompatibility, and chemical resistance. Quadraplast is typically used to replace nylon and polycarbonate based engineered plastics where coloring or stress cracking may be an issue.

## HANDLING & DRYING

Quadraplast is hygroscopic, meaning the material will absorb and react with moisture in the atmosphere and requires proper drying prior to processing. Moisture in the material will adversely affect the process parameters and end product physical properties. Materials should be properly dried in a desiccant dehumidifying hopper dryer prior to processing. Airflow to the hopper should be at least 1 cubic foot pound per minute for every pound of resin per hour at a dew point -40 F or less. It is also recommended that a machine mounted hopper drier be used. Material should be dried until the moisture content is less than 0.03% by weight. Recommended drying temperatures and times are listed in the table below by material grade.

## DRY FOR A MINIMUM OF 4 HOURS AT -40°F / -40°C DEW POINT

	AR-100
Recommended drying Temperature (°F)	185 - 195
Recommended drying Temperature (°C)	85 - 91



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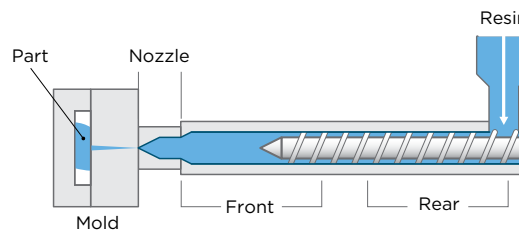
## IMPACT MODIFIED GRADES

Product & Properties	ASTM Test	AR-100
Durometer (Shore D Hardness)	D638	82
Specific Gravity	D792	1.19
Flex Modulus (psi)	D790	240,000
Tensile Strength at Yield	MPa ASTM D 638	48
Tensile Strength at Break	MPa ASTM D 638	48
Elongation at Yield	MPa ASTM D 638	6
Elongation at Break	MPa ASTM D 638	160
Tensile Modulus	MPa ASTM D 638	1,500
Flexural Strength	MPa ASTM D 638	68
Flexural Modulus	MPa ASTM D 638	1,800
Mold Shrinkage (in/in)		.004-.006

Biomerics Quadraplast can be compounded with radiopacifiers, colorants, or other additives. Customization of grades available.

## INJECTION MOLDING TEMPERATURE PROFILE

Use low compression screw with L/D of 20 or more.  
Keep compression ratio between 2:1 and 2.5:1



AR-100	
Rear	°F/°C
Rear	380/193
Front	425/218
Nozzle	460/238
Melt	440/227
Mold	165 / 74

INJECTION SPEED: MEDIUM TO FAST



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## BIOCOMPATIBILITY

Standard	ISO-10993		USP Class VI								
	4	5	Acute Systemic Toxicity Test				Intracutaneous Test			Implantation	
Test	MEM Elution	Hemolysis, Extract	Normal Saline	Cottonseed Oil	5% EtOH in Saline	Polyethylene	Normal Saline	Cottonseed Oil	5% EtOH in Saline	Polyethylene	Intermuscular
Result	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

## STERILIZATION

Sterilization Method	EtO	Peroxide	E-Beam	Gamma 25kGy	Gamma 50 kGy	Dry Heat	Autoclave
Guidance	Yes	Yes	Will Discolor	Will Discolor	Will Discolor	Will Discolor	Not Recommended

## NOTE

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