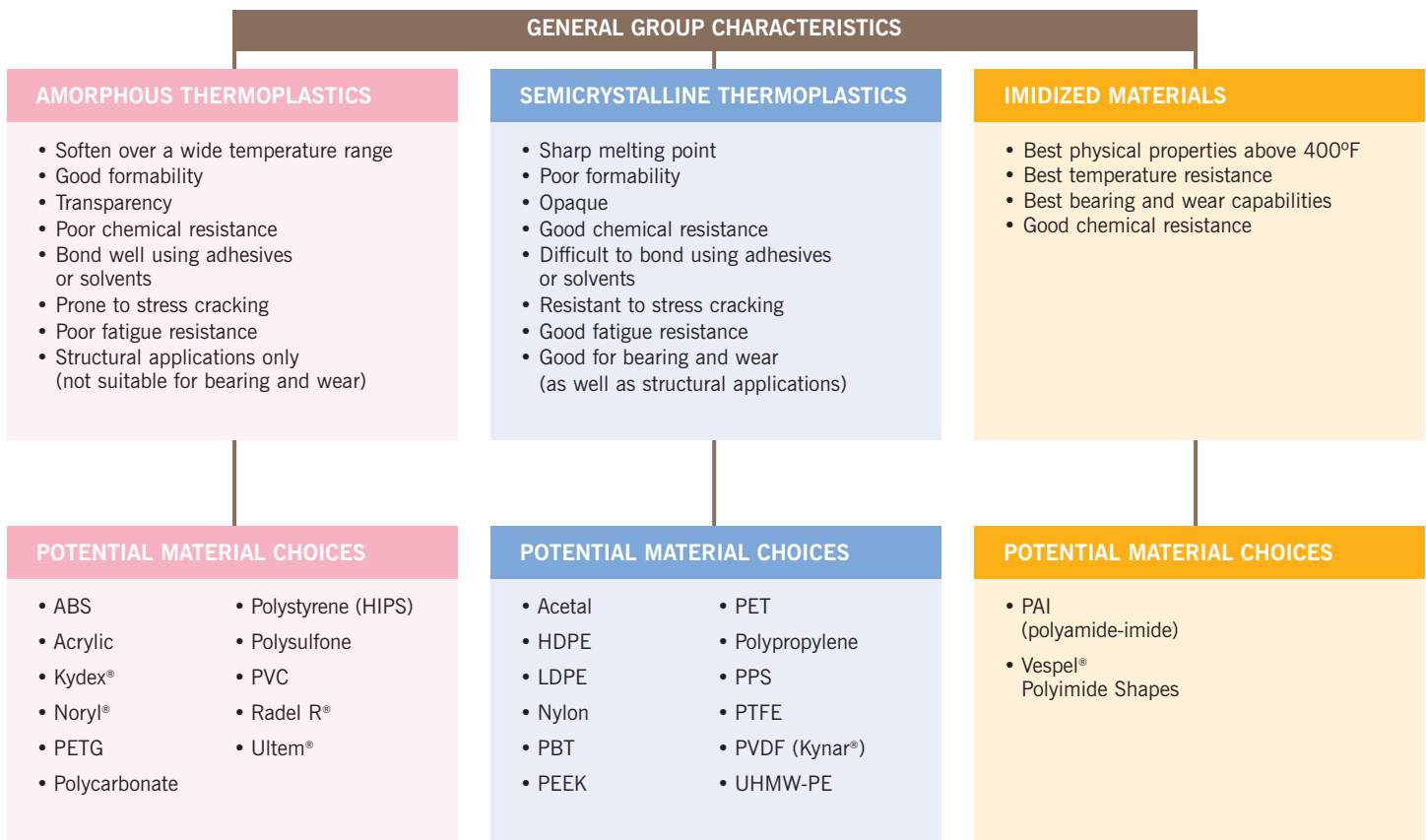


MATERIAL SELECTION GUIDE

1. GET IN THE RIGHT GROUP WHAT IS MOST IMPORTANT TO THE APPLICATION?

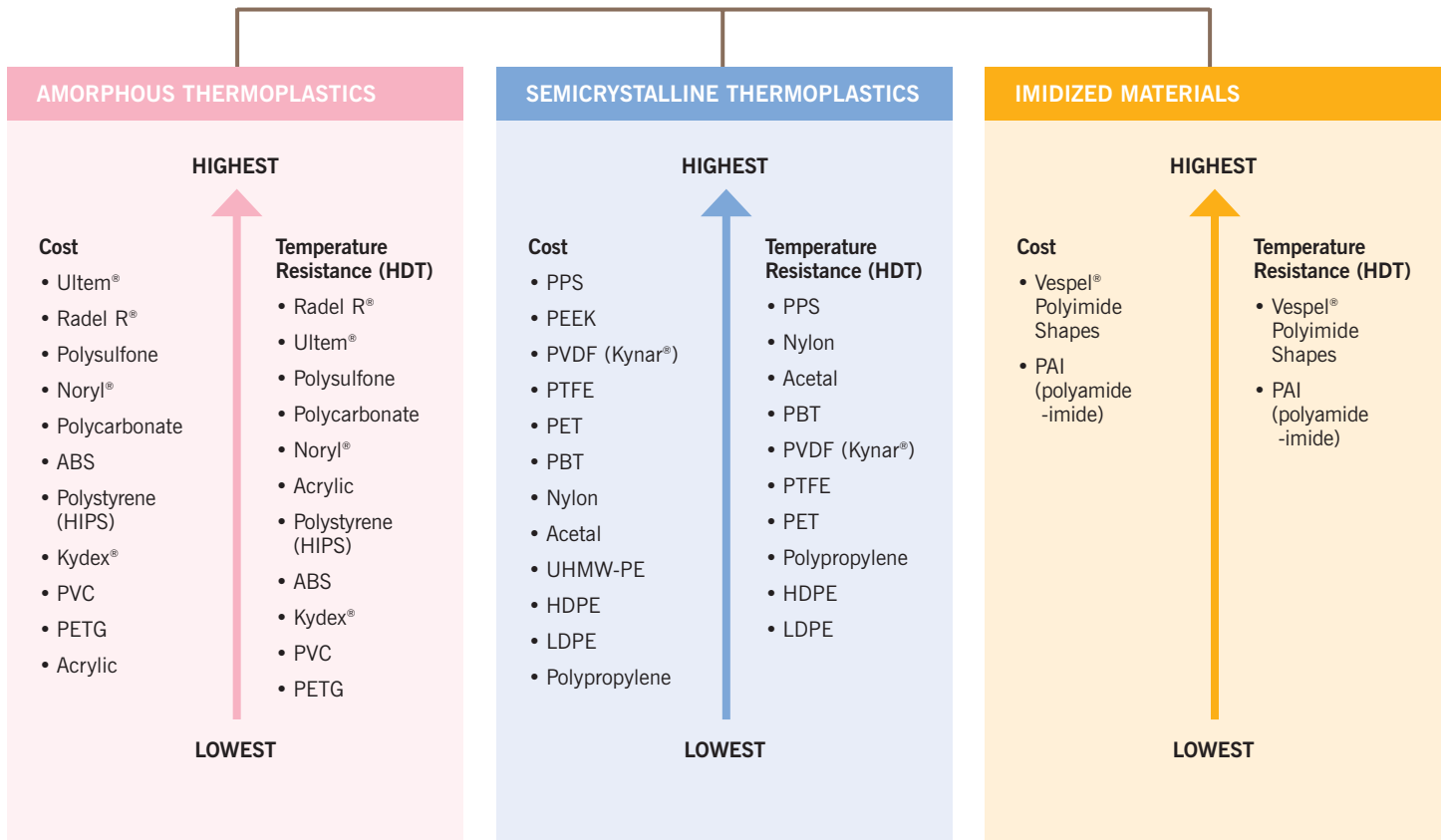


This selector guide is intended to help you review the needs of your particular application and determine a few material candidates that can then be tested.

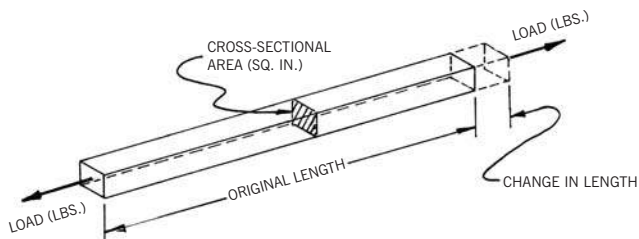
Although the information and statements herein are believed to be accurate, no guarantee of their accuracy is made. The statements and information are included for reference purposes only and are not intended and should not be construed as either a warranty of any type or representations applicable to the particular application, use or design of the buyer or user of the goods. In every case, we recommend that the purchaser or user before using or buying any product perform their own tests and make their own decision to determine to their own satisfaction whether the product is of acceptable quality, type and design and is suitable for the particular purposes under their own operating conditions.

MATERIAL SELECTION GUIDE

2. CHOOSE THE BEST FAMILY IS TEMPERATURE A FACTOR? HOW CRITICAL IS COST?



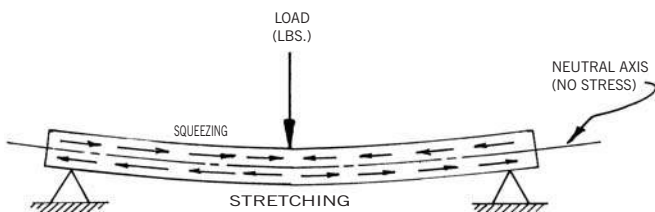
MATERIAL SELECTION GUIDE



3. COMPARE THE MECHANICAL PROPERTIES IS TENSILE STRENGTH (RESISTANCE TO BEING PULLED APART) IMPORTANT?

AMORPHOUS THERMOPLASTICS	SEMICRYSTALLINE THERMOPLASTICS	IMIDIZED MATERIALS
Tensile strength - pull apart (psi)	Tensile strength - pull apart (psi)	Tensile strength - pull apart (psi)
<ul style="list-style-type: none"> • Ultem® 15,200 • Polysulfone 10,200 • Radel R® 10,100 • Acrylic 10,000 • Noryl® 9,600 • Polycarbonate 9,500 • PETG 7,700 • PVC 7,500 • Kydex® 6,100 • ABS 4,100 • Polystyrene (HIPS) 3,500 	<ul style="list-style-type: none"> • PEEK 14,000 • Nylon (6 cast) 10,000-13,500 • PPS 12,500 • Nylon (6/6 extruded) 12,400 • PET 11,500 • Acetal (Homopolymer) 10,000 • Acetal (Copolymer) 9,800 • PBT 8,690 • PVDF (Kynar®) 7,800 • Polypropylene (Homopolymer) 5,400 • HDPE 4,000 • Polypropylene (Copolymer) 3,800 • UHMW-PE 3,100 • PTFE 1,500-3,000 • LDPE 1,400 	<ul style="list-style-type: none"> • PAI (polyamide-imide) 21,000 • Vespel® Polyimide SP-1 12,500 • Vespel® Polyimide SP-21 9,500 • Vespel® Polyimide SP-3 8,200 • Vespel® Polyimide SP-22 7,500 • Vespel® Polyimide SP-211 6,500

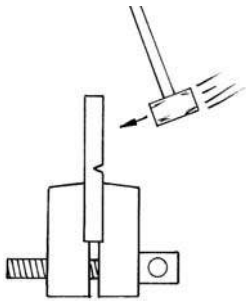
MATERIAL SELECTION GUIDE



4. COMPARE THE MECHANICAL PROPERTIES IS FLEXURAL MODULUS (BENDING STIFFNESS) IMPORTANT?

AMORPHOUS THERMOPLASTICS	SEMICRYSTALLINE THERMOPLASTICS	IMIDIZED MATERIALS
Flexural modulus - stiffness (psi) <ul style="list-style-type: none"> • Ultem® (30% glass-filled) 1,300,000 • Polycarbonate (20% glass-filled) 800,000 • PVC 481,000 • Ultem® 480,000 • Acrylic 480,000 • Polysulfone 390,000 • Noryl® 370,000 • Radel R® 350,000 • Polycarbonate 345,000 • Kydex® 335,000 • Polystyrene (HIPS) 310,000 • PETG 310,000 • ABS 304,000 	Flexural modulus - stiffness (psi) <ul style="list-style-type: none"> • PPS 600,000 • PEEK 590,000 • Nylon (6 cast) 420,000-500,000 • Acetal (Homopolymer) 420,000 • Nylon (6/6 extruded) 410,000 • PET 400,000 • Acetal (Copolymer) 370,000 • PBT 330,000 • PVDF (Kynar®) 310,000 • Polypropylene (Homopolymer) 225,000 • Polypropylene (Copolymer) 215,000 • HDPE 200,000 • UHMW-PE 110,000 • PTFE 72,000 • LDPE 30,000 	Flexural modulus - stiffness (psi) <ul style="list-style-type: none"> • PAI (polyamide-imide) 711,000 • Vespel® Polyimide SP-22 700,000 • Vespel® Polyimide SP-21 550,000 • Vespel® Polyimide SP-3 475,000 • Vespel® Polyimide SP-211 450,000 • Vespel® Polyimide SP-1 450,000

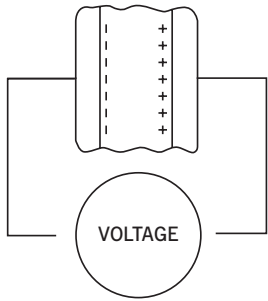
MATERIAL SELECTION GUIDE



5. COMPARE THE MECHANICAL PROPERTIES IS IZOD IMPACT (TOUGHNESS) IMPORTANT?

AMORPHOUS THERMOPLASTICS	SEMICRYSTALLINE THERMOPLASTICS	IMIDIZED MATERIALS
Izod impact (notched) - toughness (ft-lbs/in)	Izod impact (notched) - toughness (ft-lbs/in)	Izod impact (notched) - toughness (ft-lbs/in)
<ul style="list-style-type: none"> • Kydex® 18 • Polycarbonate 12.0-16.0 • Radel R® 13 • ABS 7.7 • Noryl® 3.5 • Polystyrene (HIPS) 2.0 • PETG 1.7 • Polysulfone 1.3 • Ultem® 1.0 • PVC 1.0 • Acrylic 0.4 	<ul style="list-style-type: none"> • LDPE no break • UHMW-PE 18.0 • Polypropylene (Copolymer) 12.5 • PTFE 3.5 • PVDF (Kynar®) 3.0 • PEEK 1.6 • PBT 1.5 • Acetal (Homopolymer) 1.5 • Polypropylene (Homopolymer) 1.2 • Nylon (6/6 extruded) 1.2 • Acetal (Copolymer) 1.0 • Nylon (6 cast) 0.7-0.9 • PET 0.7 • PPS 0.5 	<ul style="list-style-type: none"> • PAI (polyamide-imide) 2.3 • Vespel® Polyimide SP-21 0.8 • Vespel® Polyimide SP-1 0.8 • Vespel® Polyimide SP-3 0.4

MATERIAL SELECTION GUIDE

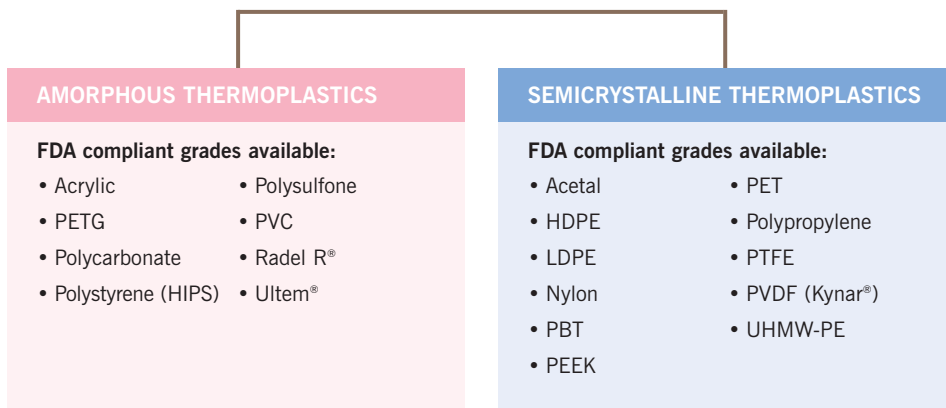


6. COMPARE THE PROPERTIES IS DIELECTRIC STRENGTH (ELECTRICAL INSULATION) IMPORTANT?

AMORPHOUS THERMOPLASTICS	SEMICRYSTALLINE THERMOPLASTICS	IMIDIZED MATERIALS
Dielectric strength - insulation (v/mil) <ul style="list-style-type: none"> • Ultem® 830 • PVC 544 • Kydex® 514 • Noryl® 500 • Acrylic 430 • Polysulfone 425 • PETG 410 • Polycarbonate 380 • Radel R® 360 	Dielectric strength - insulation (v/mil) <ul style="list-style-type: none"> • Nylon (6 cast) 500-600 • Acetal (Homopolymer) 500 • Acetal (Copolymer) 500 • PTFE 400-500 • PEEK 480 • PPS 450 • PET 400 • PBT 400 • Nylon (6/6 extruded) 300-400 • PVDF (Kynar®) 280 	Dielectric strength - insulation (v/mil) <ul style="list-style-type: none"> • PAI (polyamide-imide) 600 • Vespel® Polyimide SP-1 560

MATERIAL SELECTION GUIDE

7. THINK ABOUT THE APPLICATION - IS FDA COMPLIANCE IMPORTANT?



The virgin, natural, unfilled formulations of the sheet, rod, tube, and film products listed here are available from Curbell Plastics, Inc. in grades that comply with one or more of the FDA's guidelines for direct food contact at room temperature.

It is important to specify FDA compliant material at the time of the order to ensure that FDA compliant material is provided.

8. THINK ABOUT THE APPLICATION - IS CHEMICAL RESISTANCE IMPORTANT?

