

## Real solutions. Real electronics choice.

In the performance-driven market of electrical and electronic components, our industry-leading product line meets the most stringent material requirements, offering the most competitive mechanical, thermal, electrical and flame-retardant properties.

Material	Flame Rating	RTI Electric	RTI Impact	RTI Strength	Chemical Resistance	Flowability (For Thin Walls)
<b>Ascend Performance Materials</b>						
Vydyne® Nylon 6/6 & 66/6	5VA at 1.5mm	130°C	95°C	110°C	Good	Excellent
<b>DSM Engineering Plastics</b>						
Akulon® Nylon 6 & 6/6	5VA at 1.5mm	140°C	110°C	140°C	Good	Excellent
Arnite® PBT	5VA at 2.0mm	130°C	140°C	130°C	Good	Excellent
Arnite® PET	5VA at 2.1mm	130°C	120°C	125°C	Excellent	Excellent
Arnitel® COPE	V-0 at 1.5mm	50°C	50°C	50°C	Excellent	Good
EcoPaXX® Nylon 4/10	5VA at 1.5mm	130°C	65°C	65°C	Good	Excellent
ForTii® Nylon 4T	5VA at 1.5mm	140°C	130°C	130°C	Good	Excellent
Stanyl® Nylon 4/6	5VA at 2.0mm	140°C	140°C	140°C	Good	Excellent
<b>Mitsubishi International Polymer Trade</b>						
Iupilon® PC	5VA at 2.5mm	120°C	120°C	125°C	Fair	Good
<b>LG Chem America, Inc.</b>						
LG ABS	5VA at 2.0mm	85°C	85°C	85°C	Fair	Good
Lupox® PBT	5VA at 2.5mm	130°C	120°C	120°C	Good	Excellent
Lupoy® PC	5VA at 2.5mm	120°C	115°C	120°C	Fair	Good
Lupoy® PC/ABS	5VA at 1.5mm	60°C	60°C	60°C	Fair	Good
<b>SABIC's Specialties business</b>						
LEXAN™ Copolymer resins (PC Copolymer)	5VA @ 3.0mm	125°C	120°C	125°C	Fair	Good
NORYL™ resin (PPE+PS)	5VA @ 2.0mm	140°C	85°C	125°C	Good	Excellent
ULTEM™ resin (PEI)	5VA @ 1.5mm	170°C	170°C	170°C	Good	Good
<b>Solvay Specialty Polymers</b>						
Amodel® PPA	5VA at 1.5mm	130°C	130°C	130°C	Excellent	Excellent
Radel® PPSU	5VA @ 1.5mm	160°C	160°C	160°C	Excellent	Excellent
Ryton® PPS	5VA at 1.5mm	240°C	220°C	240°C	Excellent	Excellent
Udel® PSU	V-0 @ 4.4mm	160°C	140°C	160°C	Excellent	Good
Veradel® PESU	5VA @ 1.5mm	180°C	170°C	180°C	Excellent	Good
<b>Teknor Apex</b>						
Elexar® TPE	V-0 at 1.2mm	50°C	50°C	50°C	Fair	Good

\*RTI values based on grade(s) with the highest flame rating

### Specialty and engineering thermoplastics for electrical/electronic needs now and in the future

- ▶ Electrically conductive compounds for EMI and RFI shielding
- ▶ High-temperature thermoplastics compatible with surface-mount technology (SMT) and lead-free soldering processes for use in connectors and other components
- ▶ Thermally conductive compounds for thermal management, heating and cooling
- ▶ High-flow resins to meet miniaturization and thin-wall requirements
- ▶ RoHS- and WEEE-compliant compounds to meet “green” initiatives
- ▶ Soft-touch compounds for user comfort

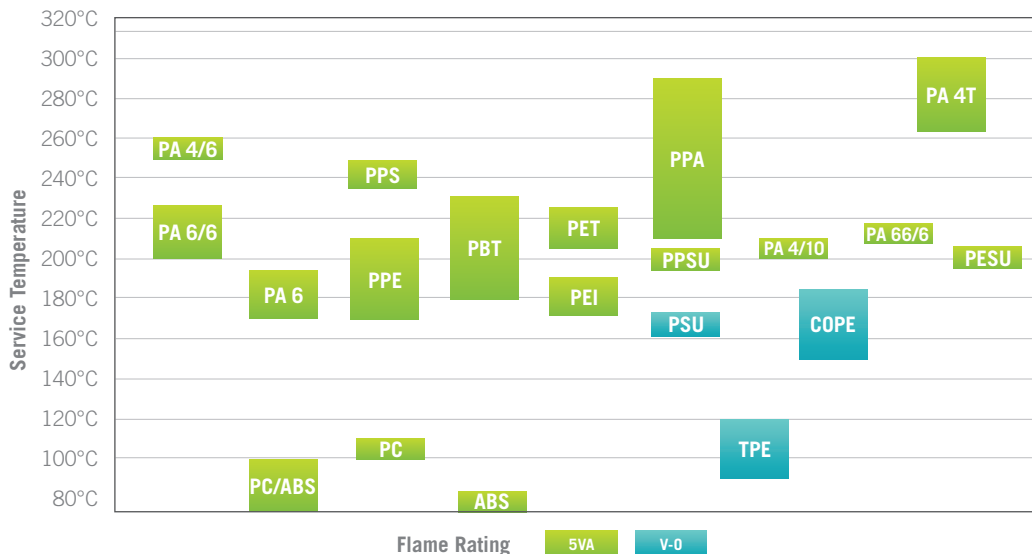
#### Applications include:

- ▶ Connectors
- ▶ Switches
- ▶ Bobbins
- ▶ Capacitors
- ▶ Relays
- ▶ Housings
- ▶ Covers
- ▶ Shields
- ▶ Sockets
- ▶ Circuit Breakers

# Your electronics choice

Specialty and engineering thermoplastics for the electrical/electronics market.

Short-Term Peak Temperature by Material Type



## Copolyester Elastomer (COPE)

- ▶ Select grades available with continuous use temperatures up to 175°C for 3,000 hours
- ▶ Excellent fatigue resistance for ease of assembly and continuous vibration
- ▶ Good chemical resistance and halogen-free flame retardancy
- ▶ Grades available in durometers ranging from 25-72 shore D

## Electrically Conductive Compounds

- ▶ Compounds are formulated with additives to achieve the right balance of mechanical properties and resistivity for any point in the EM spectrum
- ▶ Available in a wide range of engineering materials, including PA6, PA6/6, PA12, ABS, PC, POM, PPS and more

## Polyamide 4/6 (PA 4/6)

- ▶ Temperature resistance up to 280°C for soldering (IR and lead-free)
- ▶ Exceptional flow properties with high weld line strength for more robust and reliable connectors than with LCPs
- ▶ High pin retention strength, capable of withstanding of high part assembly forces
- ▶ Outstanding toughness, capable of withstanding high part assembly forces

## Polyamide 4T (PA 4T)

- ▶ High heat resistance, high stiffness, high strength, and good creep resistance leads to good pin retention
- ▶ High flowability enabling thin walled designs
- ▶ Temperature resistance up to 300°C for hot spots in lead-free reflow assemblies

## Polyamide 6 & 6/6 (PA 6 & PA 6/6)

- ▶ Short-term high temperature resistance (500°F/260°C). Able to withstand lead-free solder temperatures without melting
- ▶ Excellent dielectric strength and comparative tracking index combined with an inherent V2 flame rating, which can be increased to V0 and improved to 5VA in some grades
- ▶ Electrically neutral grades and non-copper based options available
- ▶ High flow grades for thinner walls and longer flow lengths

## Polyamide 4/10

- ▶ 70% carbon based for a carbon neutral footprint
- ▶ Lower moisture absorption than standard polyamides for increased hydrolytic stability and high modulus retention when conditioned

## Polybutylene Terephthalate (PBT/PET)

- ▶ Excellent dimensional stability
- ▶ High rigidity and strength
- ▶ Outstanding heat aging performance and dielectric strength

## Copolymer Polycarbonate (PC)

- ▶ Improved chemical resistance, weathering performance and toughness compared to standard polycarbonate
- ▶ Good thin wall flame retardancy while maintaining transparency
- ▶ High heat portfolio combines heat resistance with excellent clarity and color stability

## Polycarbonate (PC)

- ▶ UL94 flame retardant up to 5VA, including non-halogenated options
- ▶ Excellent dimensional stability, clarity and toughness

## Polyetherimide (PEI)

- ▶ Exceptional long term high heat and chemical resistance
- ▶ Among the most dimensionally stable thermoplastics available. Filled grades offer tight dimensional tolerances.
- ▶ Inherent flame resistance resulting in low flammability, smoke generation and toxicity
- ▶ UL 94 flame retardant up to 5VA, including non-halogenated options
- ▶ Excellent dimensional stability, clarity and toughness

## Polysulfones (PESU, PSU, PPSU)

- ▶ Long term high heat capability
- ▶ Excellent chemical resistance
- ▶ Sterilizable via multiple methods
- ▶ Clear grades available

## Polyphenylene Ether (PPE)

- ▶ Excellent dimensional stability, low mold shrinkage and very low creep at elevated temperatures
- ▶ High dielectric strength with excellent electrical properties over a range of temperatures, humidities and frequencies
- ▶ Good chemical resistance to battery acids, bases and many cleaning agents
- ▶ Flexible grades available in 92A-63D durometers

## Polyphenylene Sulfide (PPS)

- ▶ Excellent flow and low shrinkage for precision molding of connectors and sockets
- ▶ Superior stiffness and mechanical integrity for reliable assembly
- ▶ Inherently flame retardant
- ▶ Suitable for all soldering processes (SMT, IR, lead-free)
- ▶ Excellent chemical resistance at elevated temperatures

## Polyphthalamide (PPA)

- ▶ Outstanding electrical properties and high heat resistance allow for electronic components exposed to SMT processing
- ▶ Low moisture uptake resulting in greater dimensional stability
- ▶ Ideal construction material for high temperature, molded interconnecting devices (MIDs) and products requiring lead-free soldering
- ▶ Excellent chemical resistance

## Thermoplastic Elastomer (TPE)

- ▶ Benchmark ductility for flexible connections and cable jacketing down to -60°C
- ▶ UV and ozone resistant grades available
- ▶ Flexible grades available in durometers ranging from 58-90 shore A
- ▶ Phthalate-free grades for REACH and RoHS compliance



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