### Typical Applications

**THERMOPLASTIC TECHNOLOGIES**

- **LED LIGHTING**
  - Drop-in replacement for light-modifying resins or custom compounds, UniColor™ recognized, and choosing the right supplier is critical. Color inspires, energizes, and builds brand recognition, and choosing the right supplier is as important as selecting the right color. This offer color technology options in standard precoupled resin or custom compounds. UniColor™ maintains sheen, or cube blends.

- **CONDUCTIVE**
  - Our conductive compounds can increase strength, stiffness, and provide resistance to impact, creep, and fatigue. In metal or other material replacement, our formulas can be customized to meet cost and performance targets.

- **WEAR RESISTANT**
  - Whether you are looking to incorporate high-performance polyurethane (PU), high impact, against heat damage, as well as provide high transmission through low light diffusion, including color, which gives you high visual freedom not previously available with LED technology. Our wear resistant thermoplastic compounds can incorporate internal lubricants to reduce wear and minimize friction, thereby lengthening the service life of your end-products.

### Suggested Compounds

**RTP COMPANY** is committed to providing you with solutions, customization, and service for all of your thermoplastic needs. We offer a wide range of technologies available in pellet, sheet, and film that are designed to meet even your most challenging application requirements.

### Material Descriptions

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Type</th>
<th>Nomenclature</th>
<th>Description</th>
<th>Typical Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 226 E 13350 A</td>
<td>Thermally and Electrically Conductive Nylon (PA)</td>
<td>FLAME RETARDANT</td>
<td>High transmission</td>
<td>Ability to &quot;tune-in&quot; LED light performance and reduce the number of LEDs required, resulting in cost savings</td>
<td></td>
</tr>
<tr>
<td>RTP 226 E 13350 B</td>
<td>Thermally and Electrically Conductive PP</td>
<td>WEAR RESISTANT</td>
<td>High transmission</td>
<td>Ability to &quot;tune-in&quot; LED light performance and reduce the number of LEDs required, resulting in cost savings</td>
<td></td>
</tr>
<tr>
<td>RTP 226 E 13350 C</td>
<td>Thermally and Electrically Conductive Polypropylene (PP)</td>
<td>WEAR RESISTANT</td>
<td>High transmission</td>
<td>Ability to &quot;tune-in&quot; LED light performance and reduce the number of LEDs required, resulting in cost savings</td>
<td></td>
</tr>
<tr>
<td>RTP 226 E 13350 D</td>
<td>Thermally and Electrically Conductive Polyethylene (PE)</td>
<td>WEAR RESISTANT</td>
<td>High transmission</td>
<td>Ability to &quot;tune-in&quot; LED light performance and reduce the number of LEDs required, resulting in cost savings</td>
<td></td>
</tr>
</tbody>
</table>

**Note**: The most popular options for light-modification, however, almost any transparent resin can be considered.
RTP Company: Your Global Compounder of Custom Engineered Thermoplastics

For more than 35 years, RTP Company has been delivering innovative thermoplastic solutions that meet the exact material requirements of the LED industry. From thermally conductive compounds to halogen-free materials, RTP Company has the right solution for you.

Our global team of R&D and technical service engineers, Computer-Aided Engineering (CAE) analysts, and sales and customer service representatives allows us to support your custom engineered thermoplastic needs from design through production, anywhere in the world. Our collective experience and global assets provide you with a unique competitive advantage.

From the Start, Partner with RTP Company

We provide:
• Innovative, value-added solutions, not off-the-shelf materials
• Engineered thermoplastics that optimize your design and reduce manufacturing costs
• Short lead times that expedite prototyping and streamline production
• Consistent quality you can rely on, globally
• Responsive and personalized service from experienced materials experts

LED LIGHTING APPLICATIONS

Medical Lighting
RTP Company offers a broad range of healthcare-specific LED materials, including non-halogenated and thermally conductive compounds.

CASE STUDY
RTP Company replaced a traditional metal heat sink with a thermally conductive Nylon (PA) 6/6 compound to reduce weight and increase design flexibility.

-work lights

Work Lights

Virtually every part of a work light / flashlight can be made of thermoplastic materials.

CASE STUDY
In addition to LED materials, the thin-walled flashlight required a static dissipative compound with higher control over electrical properties that also improved processability. RTP Company’s solution was a high-flow conductive Polypropylene (PP) compound.

Automotive Dashboard Electronics

RTP Company formulated a customized RTP 300 Series Polycarbonate (PC) light diffused compound for the LED back-lit dashboard electronics in the Ford Edge®.

CASE STUDY
RTP Company has many material solutions for automotive applications, including back-lit dashboard electronics.

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RTP Company formulated a customized RTP 300 Series Polycarbonate (PC) light diffused compound for the LED back-lit dashboard electronics in the Ford Edge®.

Bicycle Lights

RTP Company also offers many different LED materials for consumer goods, including bicycle lights and reflectors.

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Application Examples
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In addition to LED materials, the thin-walled flashlight required a static dissipative compound with tighter control over electrical properties that also improved processability. RTP Company’s solution was a high-flow conductive Polypropylene (PP) compound.

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Ford Edge® is a registered trademark of Ford Motor Company.
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**Suggested Compounds**

RTP Company offers a broad range of solutions for the LED industry. The chart below outlines initial material suggestions for LED lighting applications. Note that this list is a starting point; we offer many other products, all of which can be custom engineered to meet your exact material requirements, and colormatched to your specifications. Our color technologies include precolor, lighting applications. Note that this list is a starting point; we offer many other products, all of which can be custom engineered to meet your exact material requirements, and colormatched to your specifications. Our color technologies include precolor, light-modification technologies, and specialized materials. These technologies are designed to meet even your most challenging application requirements.

### Thermoplastic Compounds

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Headlights</td>
<td>- Maximum LED life by reducing risk of color fading due to electrical overstress.</td>
</tr>
<tr>
<td>RTP 299 X 1397 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Reduced weight versus metal.</td>
</tr>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Fans</td>
<td>- Maintain design flexibility.</td>
</tr>
<tr>
<td>RTP 299 X 1390 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Extrusion profiles</td>
<td>- Increase product performance.</td>
</tr>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Luminaries</td>
<td>- Increase desired performance.</td>
</tr>
</tbody>
</table>

### Light Modification Technologies

<table>
<thead>
<tr>
<th>Series</th>
<th>Description</th>
<th>Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Series</td>
<td>Available in particulate and all polymeric-based materials, these compounds can be colored, as well.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Polabond</td>
<td>- Highly reflective.</td>
<td>- Attenuation</td>
<td></td>
</tr>
<tr>
<td>- Nylabond™ 6091 Series</td>
<td>- Reflective.</td>
<td>- Translucent</td>
<td></td>
</tr>
<tr>
<td>- RTP 2700 S Series</td>
<td>- Reflective.</td>
<td>- Highly reflective</td>
<td></td>
</tr>
<tr>
<td>- Styrenic Block Copolymer (SBC), Polypropylene Series</td>
<td>- Reflective.</td>
<td>- Durability</td>
<td></td>
</tr>
<tr>
<td>Thermally and Electrically Conductive Rigid Polycarbonate (RTP 299 X 137151 C)</td>
<td>- High thermal conductivity.</td>
<td>- Long-term, high-temperature stability</td>
<td></td>
</tr>
</tbody>
</table>

### Flame Retardant Compounds

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Devices</td>
<td>- Designed specifically to meet UL flame retardancy standards by producing low-outgassing smoke</td>
</tr>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Ignition Rails</td>
<td>- Designed specifically to meet UL flame retardancy standards by producing low-outgassing smoke</td>
</tr>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Designed specifically to meet UL flame retardancy standards by producing low-outgassing smoke</td>
</tr>
</tbody>
</table>

### Conductive Compounds

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Enhanced functionality such as impact protection, seals, teeth, and other material replacement, our thermoplastic elastomers provide rubber-like performance with the processing benefits of thermoplastic resin. We offer a wide range of options, from standard blocks, in-stock resins to highly advanced custom compounds designed to meet your specifications.</td>
</tr>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Wear resistance.</td>
</tr>
</tbody>
</table>

### Structural Compounds

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Structural integrity.</td>
</tr>
</tbody>
</table>

### RoHS Compliant Flame Retardant Compounds

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Designed specifically to meet UL flame retardancy standards by producing low-outgassing smoke</td>
</tr>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Designed specifically to meet UL flame retardancy standards by producing low-outgassing smoke</td>
</tr>
<tr>
<td>RTP 299 X 1391 A</td>
<td>Thermally and electrically conductive Polycarbonate (PC)</td>
<td>Connectors</td>
<td>- Designed specifically to meet UL flame retardancy standards by producing low-outgassing smoke</td>
</tr>
</tbody>
</table>

### Connectors

- Designed specifically to meet UL flame retardancy standards by producing low-outgassing smoke |
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RTP Company offers a broad range of solutions for the LED industry. The chart below outlines initial material suggestions for LED applications:

### Suggested Compounds

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<table>
<thead>
<tr>
<th>Thermal Conductivity Compounds</th>
<th>Typical Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 299 X 12510 T</td>
<td>Thermally and Electrically Conductive Polypropylene (PP)</td>
<td>Reduce the number of LEDs required, resulting in cost savings.</td>
</tr>
<tr>
<td>RTP 299 X 12997 B</td>
<td>Thermally Conductive Polypropylene (PP) Extrudate High-impact, UV, f1 outdoor weatherability rating</td>
<td></td>
</tr>
<tr>
<td>RTP 299 X 13176 C</td>
<td>Thermally Conductive Polypropylene (PP)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Light Modifying Technologies</th>
<th>Applications</th>
<th>Features/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP 1699 X 15028</td>
<td>Polypropylene (PP) bondable, CUT to 90 – 100 ˚C • Grips and fasteners for automotive and industrial applications</td>
<td>Increased adhesion to metal.</td>
</tr>
<tr>
<td>RTP 1699 X 15029</td>
<td>Polypropylene (PP) bondable, CUT to 90 – 100 ˚C • Grips and fasteners for automotive and industrial applications</td>
<td>Increased adhesion to metal.</td>
</tr>
</tbody>
</table>

### Applications

- **Connectors**
- **Buttons**
- **Backlit panels**
- **Light panels**
- **Electrostatic discharge (ESD) protection**
- **EMI shielding**
- **Weather resistant**

### Color

- **BackgroundColor**
- **Embossing, engraving, and build brand recognition**
- **Promote recognition, and choosing the right supplier is as important as selecting the right color**
- **UniColor™**

### Structural

- **Thermal conductivity**
- **Thermally and electrically conductive Polypropylene (PP) Extrudate**
- **Maximum LED life by reducing the rate of color degradation and increasing reliability**
- **Optimize color temperature and brightness**
- **Enhanced functionality such as RoHS and WEEE environmental initiatives such as recyclability**

### Flame Retardant

- **Non-Intumescent FR Polypropylene (PP) bondable, CUT to 90 – 100 ˚C • Grips and fasteners for automotive and industrial applications**

### Wear Resistant

- **Thermally and Electrically Conductive Polypropylene (PP) Extrudate**
- **Maximum LED life by reducing the rate of color degradation and increasing reliability**

###结论

RTP Company is dedicated to providing you with solutions, customization, and service for all of your thermoelectric needs. We offer a wide range of technologies available in bulk, sheet, and film that are designed to meet even your most challenging application requirements. 

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**NOTE:** The thermal and electrical conductivity of these materials can be tailored to meet your exact material requirements, and color-matched to your specifications. Our color technologies include precolor, lighting applications. Note that this list is a starting point; we offer many other products, all of which can be custom engineered.