Polypropylene Applications

Products successfully incorporating TDPA® additives include:

cigarette packaging
coating polypropylene on paper
cotton swab sticks
cups, cutlery
degradable, metallized OPP films and products
drinking straws
flexible packaging film
food packaging (snacks, candy, bakery)
liners for boxed foods
refuse, garbage, compost bags
tapes, labels
windows for envelopes
Use EPI’s TDPA® totally degradable plastic additives to create degradable plastics...

...a cost effective and environmentally responsible solution for manufacturers using commodity resins (PE, PP, PS).

Superior Advantage with No Loss of Product Performance

<table>
<thead>
<tr>
<th></th>
<th>Conventional</th>
<th>TDPA®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Elongation</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Impact Resistance</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Clarity</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Printability</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Permeability</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Sealability</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Food Contact Compliant</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Recyclable</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Degradability</td>
<td>✗</td>
<td>✔</td>
</tr>
</tbody>
</table>

- Customized degradable and biodegradable additives: formulated for compost and landfill environments including inadvertent litter disposal.
- Ideal for single use or limited life cycle applications.
- A cost effective and competitively priced PE product.
- Complies with FDA (USA) and EFSA (re. applicable EU legislation concerning food-contact materials).
- No change to sealability, printability or tensile strength.
- Processed on existing manufacturing equipment.
- Product quality and production rates unchanged.
- Endorsed by EPI’s International Scientific Advisory Board (ISAB) and the OxoBiodegradable Plastics Institute (OPI).
- No adverse toxicological effects or by-products.
- A degradable product (degradation end-point as per ASTM D3826).

- A biodegradable product (biodegradability measured as per ASTM D5988).
- Degradation triggered by heat and/or UV light (enhanced by mechanical stress).
- Recyclable (pre and post-consumer prior to degradation) and reusable until noticeable breakdown with no harmful residues.
- A controlled lifetime product from point of manufacture, to service life, to final disposal.
- Proven to degrade in a landfill environment, ultimately taking up less landfill space.
- Helps reduce waste and will assist in the reduction of greenhouse gases.
- Preserves the environment for future generations.