Case Study:

Advancing Circular Economy in Automotive Packaging

Background

A leading German-based packaging manufacturer serving the automotive industry sought to enhance its offering of electrostatic discharge (ESD) safe polypropylene (PP) boxes used by major OEMs. The company had previously outsourced production but recently invested in own production facility, signaling a strategic move toward expanding in-house manufacturing capacity to better serve its European customer base.

Challenge / Need

Ahe customer was under significant cost pressure in a highly competitive market. The challenge was to meet strict ESD and mechanical performance targets while simultaneously reducing material costs and incorporating sustainable practices. The end customer – automotive OEMs – also demanded circularity and environmental compliance, adding complexity to material selection.

Solution

Premix offered its conductive **PRE-ELEC®** compound, tailored for ESD packaging in the automotive sector. The standout feature was its ability to tolerate recycled content allowing integration of both generic and customer-specific regrind while maintaining key mechanical and conductive properties.

To verify this, dilution trials were conducted comparing the compound **(0% additional regrind)** with compound deluted by **10% of the customer's own regrind:**

- **Surface Resistivity (Conductivity):**
  - **0% regrind:** ~3.30E+04 Ω (excellent ESD performance)
  - **10% regrind:** 1.90E+05 Ω (still well within target conductivity range)
- **Impact Strength – Charpy Notched (ISO 179, +20 °C):**
  - **0% regrind:** 58 kJ/m²
  - **10% regrind:** 54 kJ/m²
- **Impact Strength – Izod Notched (ISO 180, +20 °C):**
  - **0% regrind:** 48 kJ/m²
  - **10% regrind:** 46 kJ/m²

These results demonstrated that **PRE-ELEC® maintains its critical performance properties** even with 10% regrind blended in –proving its robustness and suitability for circular economy applications.

By enabling up to 40% (mentioned in our MSDS) regrind content in the compound and an additional 10% customer-specific regrind, Premix delivered a material solution that met both **technical targets and cost efficiency goals** for high-volume automotive packaging.

Results / Benefits

- **Cost Efficiency:** The high regrind tolerance enabled significant material cost savings without compromising product quality.
- **Sustainability:** By reusing internal waste and integrating recycled materials, the solution aligned with OEMs' sustainability goals.
- **Performance Assurance:** Testing showed that the material retained key impact strenghts despite the delution with regrind.

The customer was highly satisfied, as Premix helped the packaging manufacturer remain competitive in a demanding market while advancing their transition toward a more circular production model.

Get in touch with us

Whether you have questions about our wide range of plastic compounds and materials or need assistance, our team is here to help.

Contact us ›

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