POLYONE TPEs OFFER A BREATH OF FRESH AIR FOR CAR INTERIORS
HVAC SEAL CHALLENGES

Consumer concerns and industry regulations have made vehicle interior air quality a major focus for automotive manufacturers.\(^1\) Volatile (VOC) and semivolatile (SVOC) emissions from plastic and elastomeric materials used in interior components, such as dynamic heating, ventilation and air conditioning (HVAC) flap seals, can cause fogging and odors that affect the comfort—and potentially the health—of drivers and passengers. In fact, a study\(^2\) by the nonprofit Ecology Center and HealthStuff.org found more than 275 chemicals that off-gas in car interiors, including substances that are linked to health issues.

In addition to reducing emissions, automotive OEMs and their tier suppliers seek solutions to the annoying “kissing” noise caused when HVAC flap seals stick momentarily during opening and closing. Many also want high-flow materials to facilitate the design and production of large or complex flap seals. Other requirements include high heat resistance up to 90°C to withstand exposure to hot air, and easy processing to accelerate cycle times.

CREATING A COMFORTABLE RIDE

PolyOne GLS OnFlex™ LO thermoplastic elastomers (TPEs) meet all these requirements, starting with lower emissions. This new family of materials significantly reduces volatile organic compounds and fogging (by up to 40%) compared to TPE technologies used in this application today. It also minimizes odor and stickiness, helping to create a quiet, pleasant and healthful interior environment.

OnFlex LO materials offer excellent flow properties, allowing designers to create large HVAC seal parts with long flow lengths. They can be overmolded onto a rigid substrate, typically polypropylene (PP), using efficient 2K (2-shot) injection molding. Together, these attributes reduce cycle times and drive higher throughput, increasing molding productivity.

Tier 1 and 2 automotive suppliers who adopt OnFlex LO TPEs can meet different HVAC seal challenges, including kissing noise, flow issues and limited mechanical properties.

- **Comfort**: odor and noise avoidance
- **Health & Safety**: reduced emissions
- **Performance**: high-temperature resistance
- **Efficiency**: streamlined processing
- **Design Freedom**: improved flow properties

VOC/FOG/FOGGING IMPROVEMENTS WITH ONFLEX LO TPE

<table>
<thead>
<tr>
<th>TEST</th>
<th>RESULT</th>
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<tbody>
<tr>
<td>Gravimetric Fogging Test (VDA 278)</td>
<td>40% reduction versus existing TPE for HVAC</td>
</tr>
<tr>
<td>VOC FOG test (VDA 278)</td>
<td>50% reduction versus existing TPE for HVAC.</td>
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OnFlex LO TPE performs better than industry-standard materials
Our OnFlex LO materials demonstrate lower odor, fogging and stickiness compared to materials currently used in automotive HVAC flap seals.

If you want learn more, contact PolyOne GLS Thermoplastic Elastomers at +1 800-457-8777 or email us at info@glstpes.com

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