

CHEMISTRY THAT MATTERS™



DIGITAL MATRIX LED HEADLIGHT SOLUTIONS

WITH ULTEM™ RESIN



New technologies such as LED, OLED and laser are rapidly driving new innovations in automotive lighting. Among them, the digital matrix LED headlight is one of the most cutting-edge applications. Each headlamp contains over one million micromirrors which disperse the light into tiny pixels and can be adjusted with great precision.

SABIC's ULTEM™ resin (polyetherimide) addresses high temperature requirements, up to 230°C, for complex headlight modules. Additionally, the material's dimensional stability and low outgassing performance are comparable to metal and glass solutions. Potential digital matrix LED headlight applications include the lens barrels, spacers, brackets, reflector mirrors and DMD (Digital Micromirror Device) sockets.

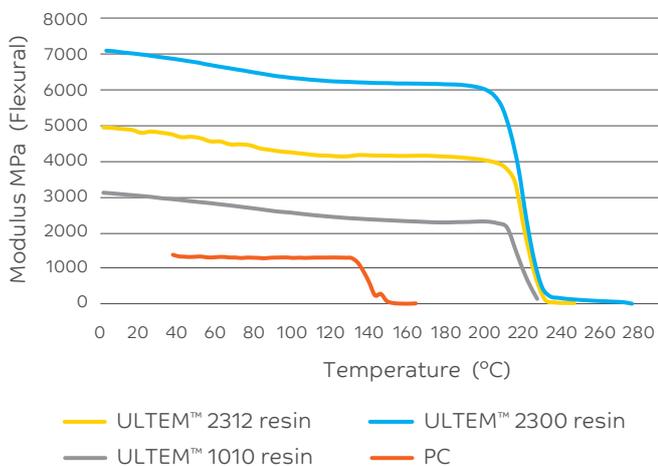


The digital matrix LED headlight could project safety or warning images in front of a car to improve safety and security for both drivers and pedestrians.

ULTEM RESIN BENEFITS:

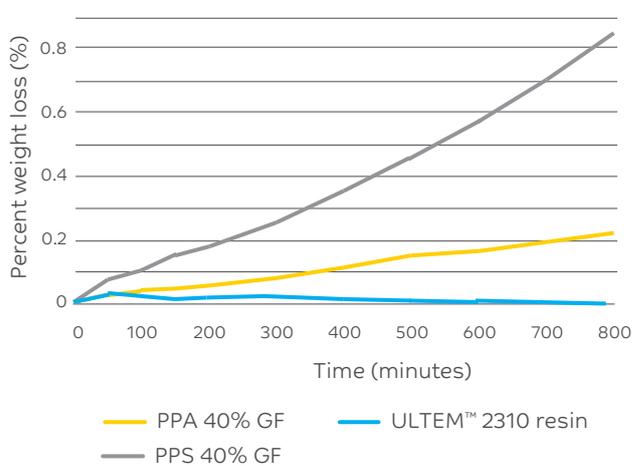
- High temperature resistance, haze onset temperature up to 230°C, near-IR transparency for better heat dissipation
- Excellent dimensional stability, low CTE, good creep resistance
- Lightweight solution compared to metal & glass
- Low outgassing to help limit potential risk of headlight contamination
- Direct metallization, primer-free, more environmentally cautious
- Design freedom, high productivity, system cost saving
- Availability of ISCC+ certified bio-based solutions

Modulus VS. Temperature

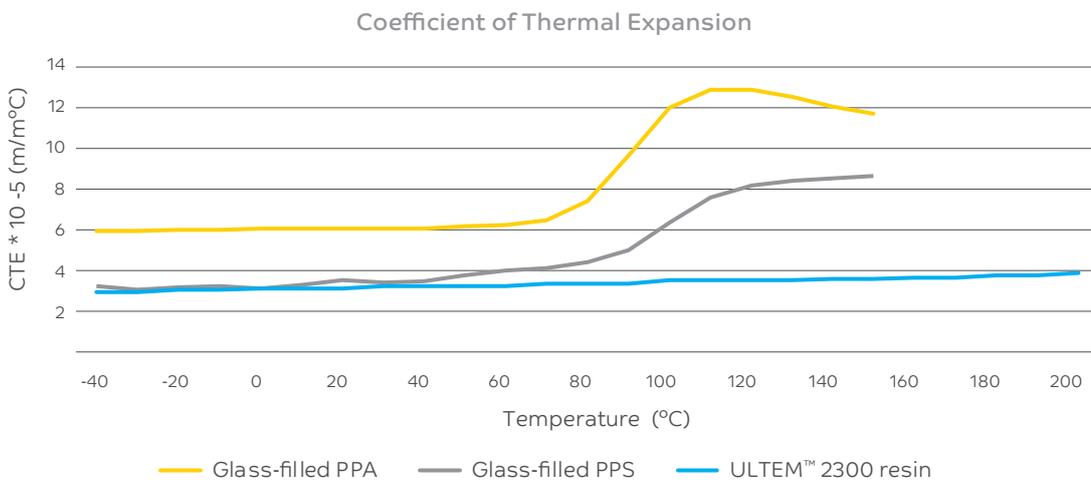
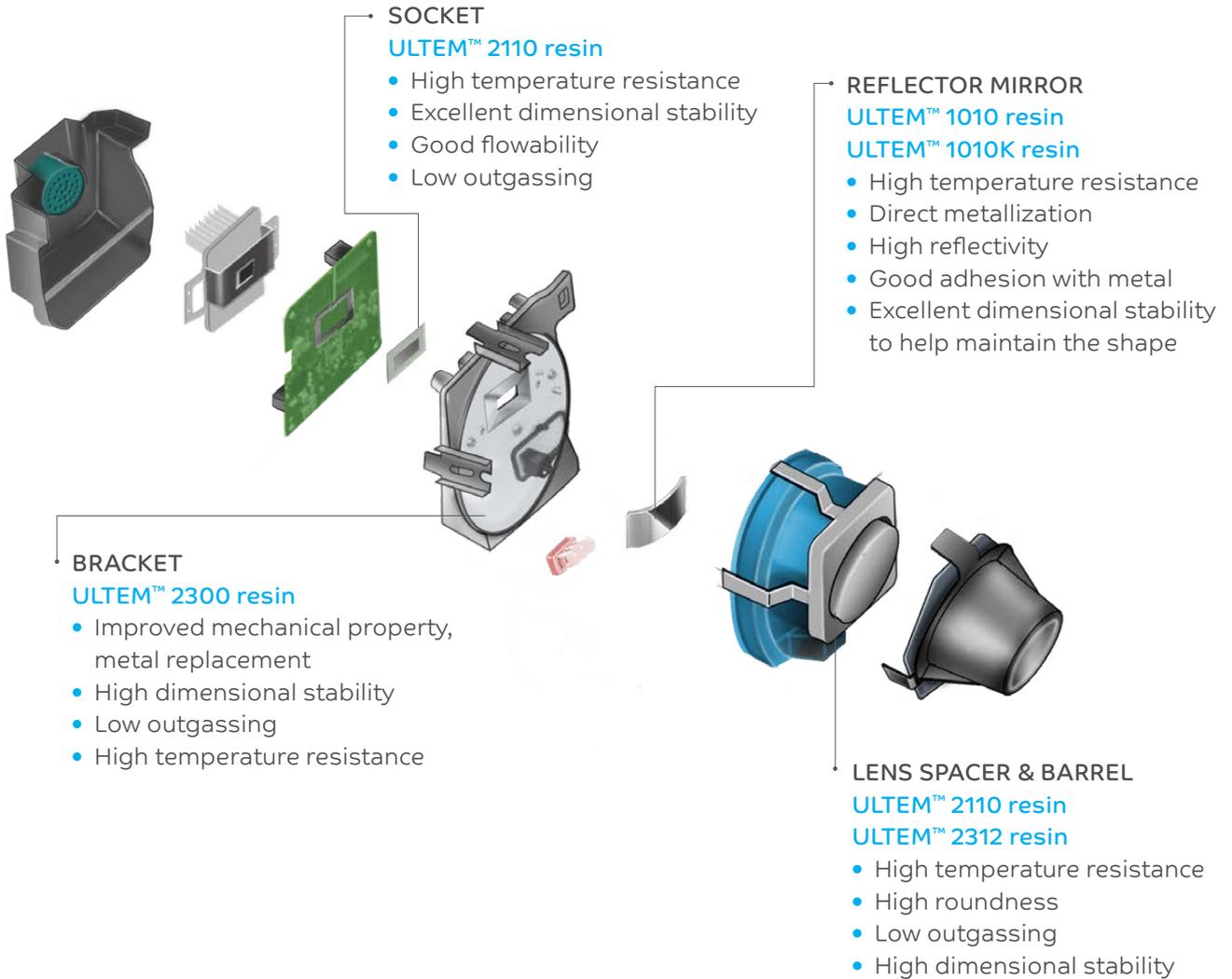


ULTEM resin maintains high modulus up to 217 °C.

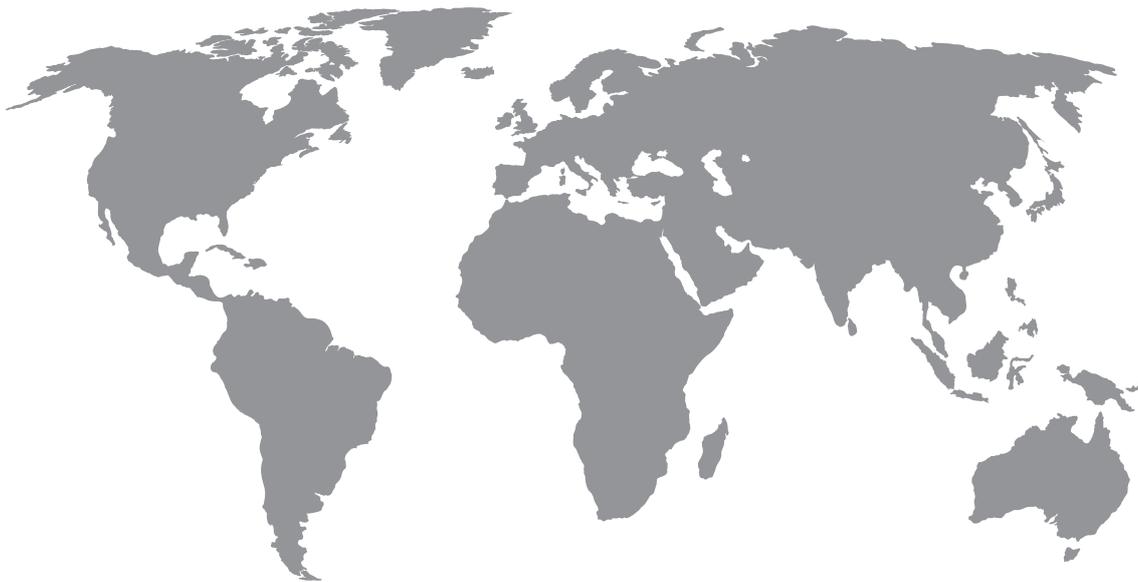
Weight loss in TGA at 225°C/437°F. Samples conditioned 24hrs @ 120°C



ULTEM resin outperforms glass-filled PPA and glass-filled PPS with lower outgassing performance.



Compared with glass-filled PPA and glass-filled PPS, ULTEM resin keeps a low and stable CTE between -40°C to 200°C and maintains better dimensional stability over a wide temperature range.



Please consult our website to find more information:
<https://www.sabic.com/en/products/specialties/ultem-resins>

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