Arnite®

Automotive lighting applications

Weight reduction and lower environmental impact

Thanks to their long service life and compact size, LED lamps have become an attractive alternative to gas discharge lamps. Big advantages are high endurance and new design possibilities. In addition, their high efficiency saves energy and thus fuel. However, since the active chip surface is rather small, it requires adequate cooling. Fans optimized to the special needs of automotive headlamps deliver the required air flow for active cooling.

These fans operate in a very wide temperature range and like all automotive components, they are subject to permanent vibration and positive as well as negative acceleration, caused by e.g. bad road conditions and potholes. Furthermore, as they operate in the environment of the engine compartment, high reliability and long life are indispensible for all headlamp components.

Working in close cooperation with major Tier1s in the Industry, DSM Engineering Plastics developed Arnite® PET XL, which fills the gap between Low Outgassing PBTs on one side and PPA, PEI, PES on the other. The new material was optimized to meet the toughest outgassing requirements – and offers additional benefits including thermal stability, excellent dimensional stability and high specific stiffness, required to limit resonant frequencies during idle engine conditions.

In contrast to conventional PBT, Arnite PET XL meets all dynamic requirements of the fans. In comparison with PPA, its lower moisture absorption significantly improved the dimensional stability while also minimizing the warpage and weight of the parts. This facilitated the optimization of the fans' dynamic performance and also improved their balance properties.

Arnite PET XL is ideally suited to Replace PPA in this segment as it improves dynamic stability of the module at High Relative Humidities whilst simultaneously offering zero moisture emissions in use, thus addressing a known issue for Polyamides like PA66 and PPA. In addition, significant cost savings can be achieved compared to alternative materials such as PES and PEI. Due to its high specific stiffness above 150˚C, Arnite PET XL even offers weight optimization potential when compared to PBTs in this range.

Eco+ solution

Arnite PET XL contributes to system cost optimizations, weight savings and reduced environmental impact.

DSM Engineering Plastics

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