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Thermoplastic Composites with Reduced Discoloration and Enhanced Fire-Retardant Property

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Abstract : This paper discusses a light-weight reinforced thermoplastic (LWRT) composite with superior fire retardancy. This porous LWRT composite is manufactured using polyolefin, fiberglass, and fire retardant additives via a wet-lay process. However, discoloration of the LWRT can be induced by various mechanisms, which may be a concern in the building and construction industry. It is commonly understood that discoloration is strongly associated with the presence of phenolic antioxidant(s) and NO_x. The over-oxidation of phenolic antioxidant(s) is probably the root-cause of the discoloration (pinking/yellowing). Hanwha Azdel, Inc. developed a LWRT with fire-retardant property of ASTM E84-Class A specification, as well as negligible discoloration even under harsh conditions. In addition, this thermoplastic material is suitable for secondary processing (e.g. compression molding) if necessary.

Keywords : discoloration, fire-retardant, thermoplastic composites, wet-lay process
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