Case Study

ALLURALITE™
Lightweight Aesthetic Composites

Liftgate Outer Panel

inquiry

The liftgate of an SUV is one of the most utilized features of the vehicle and an important part of the overall design. It needs to be both functional and capable of withstanding minor bumps and scrapes without sacrificing appearance. It must hold up to the high stresses involved in a collision and the vibrations which occur during daily use. Additionally, it is a highly visible part and as such needs to be able meet and maintain high aesthetic standards. Because the part is exposed to the elements, it must be resistant to temperature fluctuations and corrosive elements as well. Coupled with all of these needs is an inherent push by the auto industry toward light weighting to affect greater mileage.

idea

Traditionally liftgates have been made of stamped steel because it met many of the criteria required for safety and durability. However, Volkswagen realized that steel has drawbacks compared to thermoset composites. Most notably, steel is significantly heavier than thermoset composites and more susceptible to corrosion. It is also more likely to show damage from minor bumps whereas composites don't dent or deform. When IDI and VW reviewed materials options when designing the prototype liftgate for the VW Atlas, they determined the IDI's Alluralite™ material was the ideal solution.

innovation

The resulting part not only achieved a high aesthetic surface finish that Volkswagen required for the project, but it also saved approximately 35% of the weight compared to the steel part. The lighter liftgate affords easier usability by the end consumer and offers VW the opportunity for parts consolidation as they move forward with production. The aesthetic finish, strength and inherent performance characteristics that thermoset composites offer truly make this a superior solution for the auto industry.

IDI Composites® International
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inquiry • ideas • innovation

- Low density
- Paintable: e-coat system compatible
- Lightweighting without sacrificing performance or aspect

ALLURALITE™
Lightweight Aesthetic Composites

ALLURALITE – Lightweight Aesthetic Composites Low Density, Minimal Expansion Sheet Molding Compound (SMC)			
	A219	**A215**	**A212**
Glass Content	29%	36%	40%
Flexural Strength Test Method: ASTM D790	231 MPa	193 MPa	170 MPa
Flexural Modulus Test Method: ASTM D790	11,031 MPa	8,400 MPa	8,000 MPa
Tensile Strength Test Method: ASTM D638	105 MPa	105 MPa	82 MPa
Tensile Modulus Test Method: ASTM D638	11,037 MPa	9,300 MPa	7,500 MPa
ALSA Value Test Method: Ashland Method	46.1	59	65
Orange Peel Test Method: Ashland Method	9.6	9.0	8.5
Distinction of Image Test Method: Ashland Method	100	89	80
Shrinkage Test Method: ASTM D955	Minimal Expansion		
Specific Gravity Test Method: ASTM D792	1.9	1.5	1.2

The information on this sheet is a guide. The stated values reflect an average of several tests conducted on Composites International's (CI's) goods. These values were obtained under ideal conditions and may not be replicated in any particular test, part, or application. Because the values achieved in actual parts depend considerably on part design, molding conditions, and testing methods, no guarantee is made or implied regarding values to be obtained in any specific test, part, or application. CI makes no warranty or representation as to the suitability of any of its goods for use in any application. CI relies on customer to conduct its own tests and judge for itself the suitability of CI's goods.

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