

# CaseHistory

## SMC Outshines Steel



The new design attracts first-time Lincoln owners and encourages established Lincoln owners to modernize.

<b>Application:</b>	Decklid
<b>Model:</b>	Lincoln MKS
<b>Manufacturing Processes:</b>	Compression Molding
<b>Resin:</b>	Atryl® Unsaturated Polyester

The 2009 Lincoln MKS blends classic and contemporary styling into an all-new luxury touring sedan that attracts first-time Lincoln owners and gets brand loyalists to modernize. The vehicle's swept-tail decklid is compression-molded of an advanced sheet molding composite (SMC) developed by Tier One automotive supplier Continental Structural Plastics (CSP) with technology and support from resin supplier AOC.

The SMC delivers a superior Class A mirror-like finish while recording phenomenal statistics for resistance to edge-pop formation during the paint process. CSP markets the glass fiber-reinforced material as "TCA®," for "Tough Class A." Improved toughness is the key to the material's high quality on the automotive paint line.

"The TCA® system uses a special AOC polyester resin," said Probir Guha, General Manager, Materials and R&D for CSP. "The primary advantage of the technology is edge-pop resistance through the paint process. Defects dropped from levels of 200 to 600 occurrences per thousand vehicles to zero to five. These statistics have been maintained on multiple applications over a three- to four-year period."

### Decklid Weighs Less, Costs Less

With the high quality of the painted body panels assured, engineers could better focus on the cost and performance advantages of composites over steel. For example, compared to steel, the composite decklid

## SMC Outshines Steel, continued

won't rust or dent, and has more favorable noise/vibration/harshness characteristics.

Another key benefit is composites' lower mass per equal volume versus steel. The SMC outer panel is combined with an inner panel that is also molded of SMC by CSP. Mass reduction with the SMC decklid assembly contributes to engineering goals to improve the fuel efficiency of the Lincoln MKS.

In addition to quality, performance and weight savings, the composite decklid makes the vehicle more cost-efficient. The Lincoln MKS is part of the industry trend toward satisfying specific marketing niches, where demand is typically met with annual vehicle builds of 120,000 units or less. In that production range, tooling costs for composites are significantly lower than tooling for steel. Composites also cost less because tooling lead times are shorter and several parts and production steps can be replaced with a single unit out of the mold.

"The success of TCA® in automotive is being closely watched by other industries and automotive OEMs who have yet to initiate body panel applications in SMC," commented Guha. "AOC and CSP continue to work together to provide further value-added improvements in SMC applications."

### About Continental Structural Plastics

Continental Structural Plastics is a tier one automotive supplier of molded plastic and polymer composite components and systems. For more information, contact the sales and marketing department at corporate headquarters in Troy, Michigan, USA, by phoning (248) 593-9500 or going to [www.csplastics.com](http://www.csplastics.com).

### About AOC

AOC is a leading global supplier of resins, gel coats, colorants, additives and synergistic systems for composites and cast polymers. AOC products are manufactured in facilities strategically located in North America, Europe and Asia. AOC-owned facilities are ISO 9001:2000-certified, use proprietary technology to ensure resin batch-to-batch consistency, and follow Six Sigma-Lean principles for improved efficiency and quality. For more information on AOC technology, quality and service, phone (901) 854-2800, e-mail [sales@aoc-resins.com](mailto:sales@aoc-resins.com) or go to [www.aoc-resins.com](http://www.aoc-resins.com).



Continental Structural Plastics worked with AOC to develop a sheet molding composite (SMC) that offers superior edge-pop resistance through the paint process.

  
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