

LANXESS makes Honda's FCV "Clarity Fuel Cell" zero emission vehicle lighter

- **Lightweight design: First hybrid-molded rear bumper beam**
- **One-shot molding technology enabled**

Cologne/Tokyo – Lightweight solution from German specialty chemicals company LANXESS has been featured in FCV (fuel cell vehicle) "Clarity Fuel Cell", the latest model of hydrogen electric vehicle from Honda Motor Co., which recently has been introduced in the market. Using Tepex, continuous- and long-fiber reinforced thermoplastic composites with PA 6 matrix from LANXESS subsidiary Bond-Laminates, in combination with Durethan, a PA 6 high-tech plastic grade from LANXESS, Honda has introduced the world-first development of hybrid-molded rear bumper beam in the model using one-shot molding technology enabled by LANXESS.

"It is our great honor to feature our light weight solution with our Tepex and Durethan in Honda's latest model of FCV," said Martin Klocke, Head of Technical Marketing and Business development Tepex Auto in the High Performance Materials business unit at LANXESS about the project.

The worldwide automotive industry is facing increasing restrictions on CO₂ emissions and therefore automakers actively develop zero emission vehicles such as EV (electric vehicles) and FCV. These trends have been driving the demand for innovative materials and new technologies to make cars lighter. LANXESS has been offering lightweight solutions and technologies to the automotive industry which have proven themselves in various applications worldwide. This has resulted in developing a one-shot hybrid molding process for making large components out of its plastic and glass fiber composite. The result is approximately 50 percent weight reduction compared to the metal solution and a significant streamlining of the production process.

LANXESS AG

Contact:
Michael Fahrig
Corporate Communications
Spokesperson Trade & Technical
Press
50569 Cologne
Germany

Phone: +49 221 8885-5041
michael.fahrig@lanxess.com

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“With this application, we not only realized the first rear bumper beam made out of Tepex and Durethan material, we also have the first serial automotive production in the Asia Pacific region for our composite material Tepex,” said Deniz Guerkan, Manager Technical Marketing and Business Development Tepex Auto in the High Performance Materials business unit at LANXESS Hong Kong Limited.

Expertise in lightweight design to support development of components

In the development, the materials are uniquely composed in several layers in combination with Tepex dynalite, continuous long glass fiber reinforced thermoplastic composite sheets, and Tepex flowcore, random long glass fiber reinforced composite sheets. This combination enables an easy material flow in the molding process to fill out complicated part geometry, and a greater mechanical strength with a superior characteristic of dynamic energy absorption in such a critical application as a rear bumper beam.

Through its HiAnt custom-made services for lightweight design, LANXESS provides automakers and parts suppliers with property testing services. LANXESS also supports the development all the way to the mass-production. The series production of the Honda rear bumper beam is done by Takagi Seiko Co., a leading plastic parts manufacturer in Japan, with advanced plastic molding technologies. **Sunwa Trading, LANXESS's distributor for Tepex composite sheets in Japan with long experience in composites, further assisted the development process.**

Tepex – continuous fiber-reinforced thermoplastic composites from LANXESS

Tepex is a light yet strong state-of-the-art composite material made from a thermoplastic matrix and continuous fiber reinforcements such as carbon or glass. As one of LANXESS's lightweight solutions, it is

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michael.fahrig@lanxess.com

used worldwide for automobile structural components such as front ends and seat shells, as well as in numerous mass-produced items like smartphones and sporting goods. Tepex boasts cycle times of around 15 to 60 seconds, has reinforcing fibers and thermoplastic base material that provides excellent mechanical properties, and is light enough to reduce component weight by more than 50 percent. The result for automobile applications is better gas mileage and fewer CO₂ emissions. Tepex is the flagship brand of LANXESS's wholly owned subsidiary Bond-Laminates GmbH.

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Michael Fahrig
Corporate Communications
Spokesperson Trade & Technical
Press
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Germany

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LANXESS is a leading specialty chemicals company with sales of EUR 7.9 billion in 2015 and about 16,200 employees in 29 countries. The company is currently represented at 52 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, specialty chemicals and plastics. Through ARLANXEO, the joint venture with Saudi Aramco, LANXESS is also a leading supplier of synthetic rubber. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World) and FTSE4Good.

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You can find further information concerning LANXESS chemistry in our WebMagazine at <http://webmagazine.lanxess.com>.

News Release



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Corporate Communications

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Press

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