Hybrid Components with Copolyamide Adhesion Promoters

- Hybrid components are lighter made with an adhesion promoter based on polyamide 12
- Direct application after melting is possible

Hybrid components made with an adhesion promoter based on polyamide 12 by Evonik Industries can absorb a greater amount of force in panels of the same thickness; that is, they are lighter given the same level of performance. Evonik has currently been developing this innovative material solution, drawing on its long history of experience in bonding various materials.

Hybrid components made of metal and plastic, such as flat components in the automotive industry like front-end support structures, roof and rear hatch reinforcing structures, not to mention compact, injection molding–sheathed components in joined areas of a vehicle’s body structure, are increasingly being used to improve lightweight design systems. The latest development is an adhesive system based on copolyamides, which markedly improves the bonding of steel and aluminum to fiberglass–reinforced polyamides. Steel and polyphthalamide hybrid components and metal–to–metal bonding are possible, too.

Three ways are used to process the material:
As a granular material, it can be applied directly after the melting process. This means that no film has to be made beforehand, which would require additional energy input. As a powder, it can be applied using an electrostatic coating process, or it can be used as an adhesive in the coil coating process. The coating is storable, making it possible to process the component at a later time, such as outside the production cycle.

Components using the innovative primer system have a high degree of chemical resistance, are capable of withstanding heat and mechanical stress, can take cathodic dip coating, and can be welded together.
When it comes to bonding or adhesion, Evonik draws on many years of experience. The company offers an entire range of raw materials and processing aids that help hold a car together optimally, for example. Evonik has developed a plastic–rubber bonding system that can directly bond thermoplasts and rubbers without an adhesion promoter. The multilayer wiring systems the company developed primarily for motor vehicles are known worldwide. Systems for multilayer films have also been successfully launched on the market.

**Caption:** The new adhesion promoter system from Evonik based on polyamide 12 significantly improves the adhesion of steel and aluminum to glass–fiber reinforced polyamides.

The photo can be downloaded at www.evonik.com/hp

**Company information**

Evonik Industries is the creative industrial group from Germany which operates in three business areas: Chemicals, Energy and Real Estate. Evonik is a global leader in specialty chemicals, an expert in power generation from hard coal and renewable energies, and one of the largest private residential real estate companies in Germany. Our strengths are creativity, specialization, continuous self-renewal, and reliability. Evonik is active in over 100 countries around the world. In its fiscal year 2007 about 43,000 employees generated sales of about €14.4 billion and an operating profit (EBITDA) of more than €2.2 billion.

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