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## IN-COLOURED PLASTIC BODY PARTS SAVE VOLVO MONEY AND HELP THE ENVIRONMENT



Volvo Trucks is introducing more and more cab and chassis parts made of in-coloured plastic to replace painted metal or plastic components. The new material has a much lower environmental impact and also costs less at all stages of production.

About 65% of all new Volvo trucks are painted 'winter white' and although the paints themselves are water-borne, hydrocarbons and other substances are still released during their manufacture and during the painting process. Painting is also one of the most costly and energy-intensive production operations.

The metal parts for Volvo's truck cabs are painted at the company's cab plant in Umeå, while the plastic components have, until now, been painted by a contractor in Belgium for shipment to Volvo's assembly plants.

Significant costs could be saved in terms of both materials and tools if all of the 'white'

trucks were equipped with front panels, wind deflectors and other cab and chassis components of in-coloured plastic.

Environment and economy both winners

Body parts of in-coloured plastic are already used on Volvo trucks, an example being the 'C part' of the air deflector at the rear of the cab side. This is a large component which, thanks to its lower density (1.1 kg/dm<sup>3</sup> compared with 1.8 kg/dm<sup>3</sup>) weighs 4 kgs less than the plastic part used before. Although this may not sound significant, it represents a considerable saving in weight that can benefit customers in terms of increased payload or improved fuel economy when fitted to perhaps 30,000 trucks. Volvo Trucks has also reduced the tool cost by 40% compared with conventional injection moulding or Sheet Moulding Compound (SMC) pressing.



In-coloured plastic is a complex science. The material consists of four layers of different plastic compositions manufactured by different processes.

The purpose of the surface layer is to provide a glossy, scratch-resistant finish, while layer 2 provides UV protection and layer 3 is the coloured element. Layer 4 provides impact resistance and also supports the other layers.

Unlike the plastics used before, the new material has the advantage of being 100% recyclable.

### **Tough demands and stringent testing**

The material obviously undergoes stringent testing before being used in production. Volvo's specifications are tough in terms of the sunlight/UV resistance of complete components, their impact strength in cold, shaking resistance on poor roads and resistance to chemicals such as petrol, diesel oil and salt - as well as their resistance to scratching in brush washes.

"The introduction of more parts of in-coloured plastic is a major contribution to our efforts to reduce environmental impact," says Hannele Nurmin who, among other things, is environmental manager for the Materials and Environmental Impact characteristic at the company's premises in Lundby, Göteborg.

Hannele added, "Lower weight and an improved manufacturing process, with less painting, are valuable contributions, as is the fact that the material is recyclable. We achieve environmental gains at all stages - when the truck is manufactured, during its useful life and during the end-of-life phase."

Volvo Trucks engineers are continuing their development work in close consultation with their suppliers, including Andrés Plastics of Göteborg and Senoplast in Austria. The result will be the successive introduction of more in-coloured plastic parts for truck cabs and chassis alike.