

PRESS INFORMATION

Grivory HT – the innovative design material for automotive construction

For more than 40 years, EMS-GRIVORY has played a decisive part in the development of innovative automotive components of the highest quality. One important factor for this success is the product family Grivory HT. With the two product lines, Grivory HT "High Hydrolysis" und Grivory HT "High Temperature", the Swiss company is further expanding its already very strong position.

Grivory HT is a partially crystalline, thermoplastic design material based on polyphthalamide (PPA). EMS-GRIVORY has become market leader in Europe with this tried and proven product. Grivory HT is characterised by a high-performance property profile which is significantly enhanced once again with the two product lines Grivory HT "High Hydrolysis" and Grivory HT "High Temperature".

Outstanding resistance to hydrolysis

Grivory HT "High Hydrolysis" is characterised by an outstanding hydrolysis resistance. This makes it especially suited for automotive applications with demanding requirements in engine cooling systems. But the product series provides even more: It has excellent weld-line fatigue strength, electro-compatible stabilisation and optimal demoulding behaviour, making it very suitable for parts with complex geometry or undercuts.

Requirements completely fulfilled

The Chinese injection-moulding company, Xiangshan Boyu Auto Mold Plastics Manufacture relies on Grivory HT "High Hydrolysis". Using Grivory HT XE 10827, it makes a water outlet for VW, which is installed in the models Magotan, Tiguan, and Passat as well as the Audi A3 series. This component forms the connection between engine cooling system and the coolant feed line.

Two properties were decisive for use of this material in the cooling system: On the one hand, its excellent resistance to glycol in the temperature range from -40 to 135 °C – VW's main criterion for use in the cooling system – and, on the other hand, the material was very convincing due to its optimised demoulding behaviour which significant improves the efficiency of the injection-moulding process.

Higher E Modulus and heat deflection temperature

Grivory HT "High Temperature" is used everywhere where current PPAs reach the limit of their mechanical endurance. Core properties are excellent stiffness at elevated temperatures, exceptional resistance to creep strength and the balanced relationship between glass-transition temperature, melting point and processing. At a slightly lower melting point than standard PPA, the new product line offers a significantly higher performance at high temperatures. The E modulus at 140 °C has been increased by 50% and the heat deflection temperature (HDT/C) by 50 °C to 250 °C.

Substantial weight and cost savings

The improved property portfolio generates a series of advantages: Components with the same geometry but made of Grivory HT "High Temperature", have a significantly higher loading capacity at high temperatures. This means they can be made with considerably lower wall strengths, thus shortening the cooling-down phase in the mould and allowing faster cycle times to be achieved. The lower wall strength also ensures lower component part costs and a clear reduction in part weight.

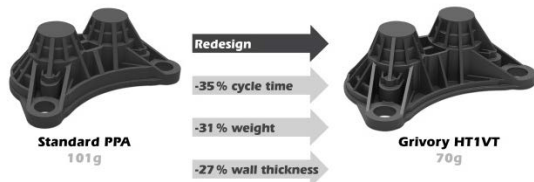
Based on these advantages, Grivory HT "High Temperature" is excellently suited for use in clutch and gearbox applications as well as under the hood structural components and supports.

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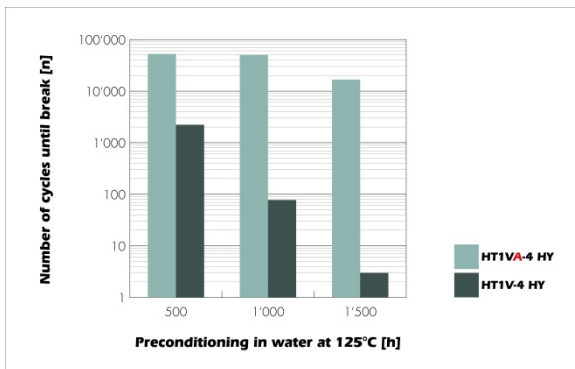
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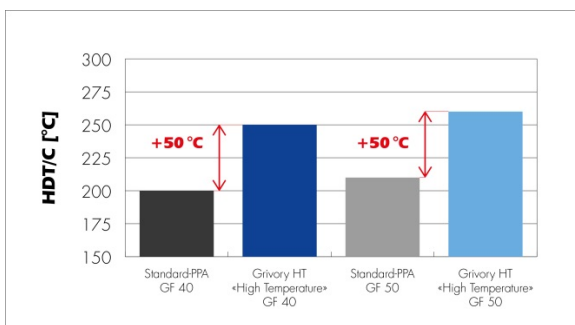
Water outlet brackets for VW, made of Grivory HT "High Hydrolysis" by the Chinese injection-moulder Xiangshan Boyu Auto Mold Plastics Manufacture.



Grivory HT "High Temperature" allows cost and weight savings to be achieved: In this demonstrator component, it was possible to reduce wall strength by 27% compared to standard PPA. This corresponds to a weight saving of 31% while the cycle time is 35% shorter.



Grivory HT "High Hydrolysis" provides significantly improved welt-line fatigue strength.



With the same glass-fiber content, Grivory HT "High Temperature" provides a 50 °C higher heat deflection temperature than standard PPA.



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