Hydrolysis Resistance of Hytrel®

Hytrel® is the DuPont registered trademark for its brand of thermoplastic polyester elastomers. The polyether-ester block copolymers combine many of the most desirable characteristics of high-performance elastomers and flexible plastics.

HYTREL® has excellent resistance to non-polar materials such as oils and hydraulic fluids, even at elevated temperatures. If necessary, resistance to hot oils can be further enhanced by heat-stabilisation.

HYTREL® is resistant to most polar fluids – such as acids, bases, amines and glycols at room temperature.

However, depending on the grade, its resistance to water is limited at temperatures of 70°C or above. The hot water – hydrolysis resistance to Hytrel® is directly related to its composition and original manufacturing process.

HYTREL® TPC-ET, THERMOPLASTIC ELASTOMER BLOCK COPOLYMER

This study is comparing the hydrolysis resistance of four Hytrel® with hardness range from 30 to 72 Shore D. The 72 Shore D Hytrel® contains the higher level of ester and hence will be more sensitive to hydrolysis. Three different temperatures are being looked at: 70°C, 85°C and 100°C. In this case only full water immersion is considered in order to be in the most stringent conditions.

**HYDROLYSIS RESISTANCE: FULL IMMERSION AT 85°C**

As it can be seen above, the lowest hardness Hytrel® 3078 and 4069 are almost not impacted after being aged 1500hrs in water at 85°C.

**HYDROLYSIS RESISTANCE: FULL IMMERSION AT 70°C**
One Hytrel® for every conditions

For the ageing in water at 100°C, it is recommended to use the Hytrel® 30 or 40 Shore D, which keeps its initial strain at break for more than 1000 hrs.

The grade selection is the first and most important step when working with Hytrel® in order to use the right material for the defined requirements.

To find out more, visit plastics.dupont.com or contact the nearest DuPont location.

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