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Technical Literature B-02

Kinematic Viscoelasticity of AURUM®

Kinematic viscoelasticity is used as a measure for evaluating the thermal properties of a material.

The modulus of elasticity of a material changes substantially in the vicinity of the glass transition temperature. Fig. 1 shows the way the viscoelasticity of AURUM® changes in comparison with other representative crystalline engineering plastics (PEEK, PAm 6,6 and PTFE) and a non-crystalline engineering plastic (PES).

With the conventional crystalline engineering plastics, the glass transition temperature of all of them is lower by over 100ºC than that of AURUM®, and therefore their flexural modulus declines sharply in the low temperature range (RT: up to 200ºC).

On the other hand, the characteristic of a non-crystalline engineering plastic (PES) is that it is higher in glass transition temperature than a crystalline engineering plastic. In spite of that, however, its modulus of elasticity falls very sharply at a temperature a little higher than 200ºC.

As described above, AURUM® has those excellent thermal properties which even non-crystalline engineering plastics, not to mention the conventional crystalline engineering plastics, do not have. Because of this, AURUM® can be applied to various moving parts requiring high performance.

Fig. 1 Kinetic Viscoelasticity

	Tg	Tm	
(A) AURUM®	250	388	Crystalline
(B) PEEK	143	334	Crystalline
(C) PES	225	-	Non-crystalline
(D) PAm 6,6	80	265	Crystalline
(E) PTFE	-110, 30, 130	327	Crystalline