

Stress Relaxation

Creep and stress relaxation are very similar phenomena and both phenomena are caused by the native visco-elasticity of materials. These properties are expressed as follows;

Creep ; $\epsilon(t)=\sigma/E(t)$

Stress relaxation ; $\sigma(t)=\epsilon E(t)$

Where, ϵ , σ and E denote strain, stress and modulus respectively. Also, (t) denotes a function of time; t .

The Cross-linked polymer based compounds and low polymer content compounds are generally advantageous in creep or stress relaxation.

Figs.1 to 4 show the short term compressive stress relaxation data of four DIC.PPS main grades comparing with PBT G30 and polyamide-66 G30.

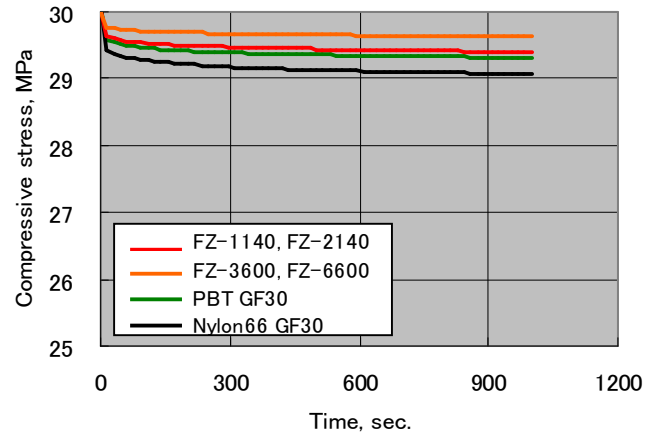


Fig.1 Short term stress relaxation at 23°C

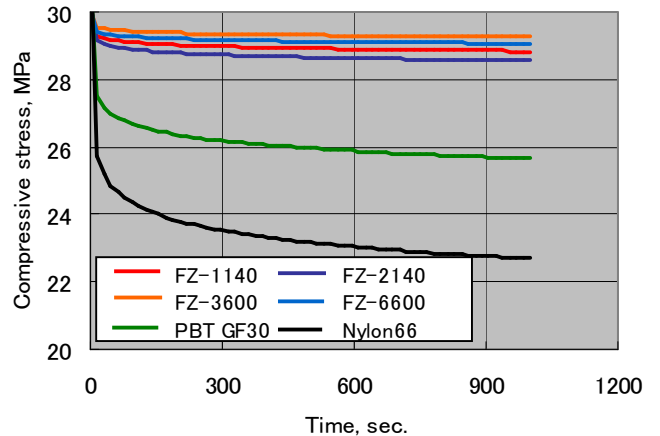


Fig.2 Short term stress relaxation at 80°C

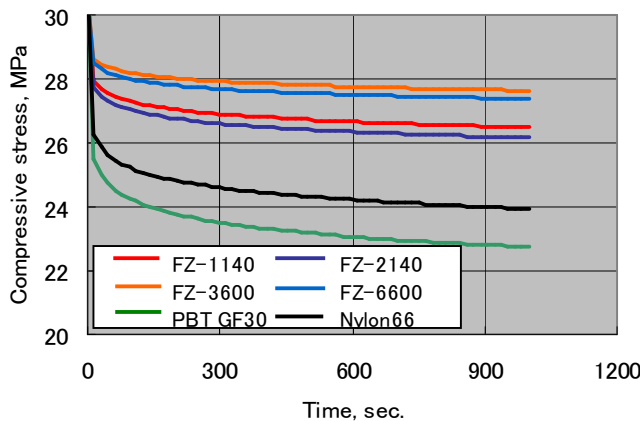


Fig.4 Short term stress relaxation at 160°C

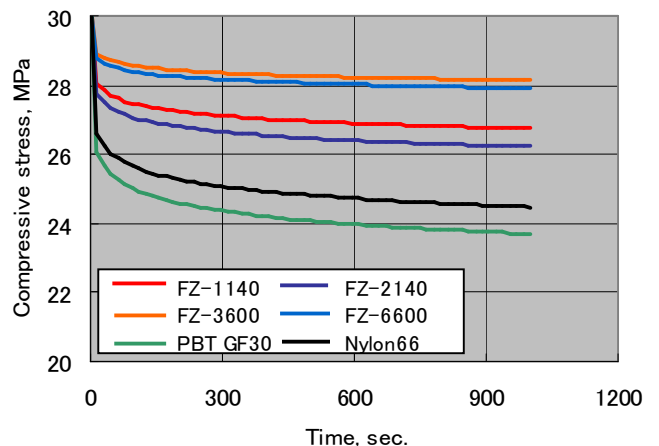


Fig.3 Short term stress relaxation at 120°C



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