

Fatigue

PPS has superior long term mechanical endurance even under elevated temperature. Fig.1 is the schematic view of S-N curve comparing with plastics and metal materials. In this figure, metal materials has clear and accurate fatigue endurance limit, on the other hand generally fatigue endurance limit of the plastic material is not clear. Based on this character, the fatigue endurance limit is defined as the failure stress amplitude at 10^7 cycles for the plastic materials.

In experience, the fatigue endurance limit of PPS is about 1/3 to 1/4 of the static strength at the same testing conditions. The following figures are the flexural fatigue test data based on ASTM-D671 (constant stress) at 23°C, 120°C and 150°C.

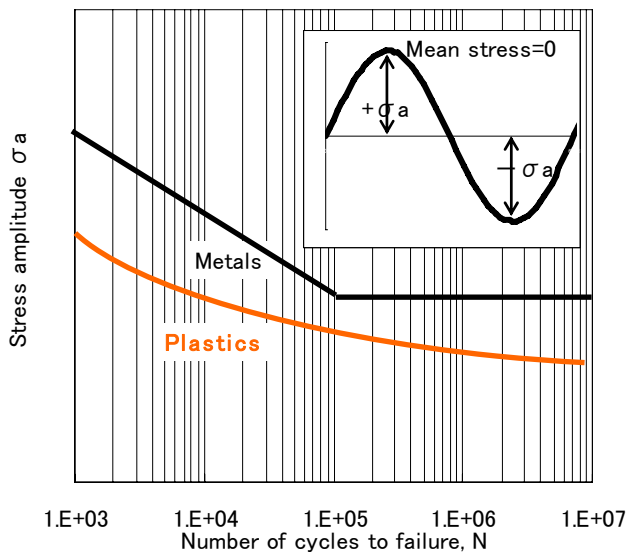


Fig.1 Schematic view of S-N curve

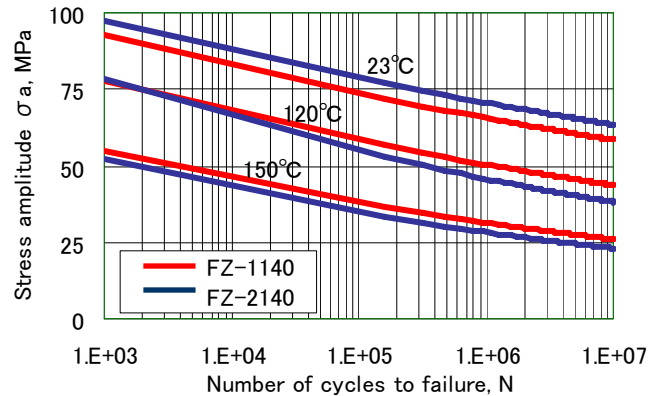


Fig.2 Flexral S-N curves of GF40% grade

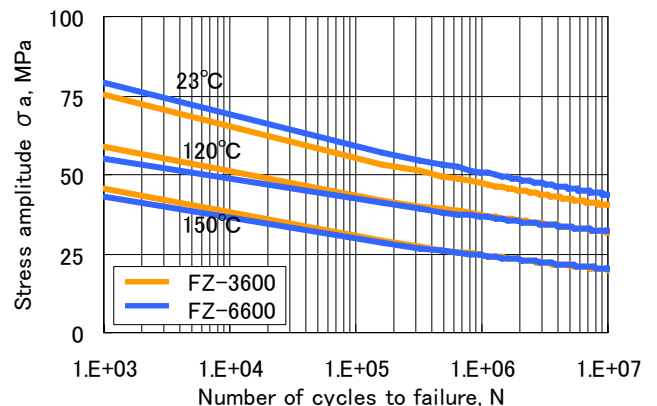


Fig.3 Flexral S-N curves of GF&filler grades

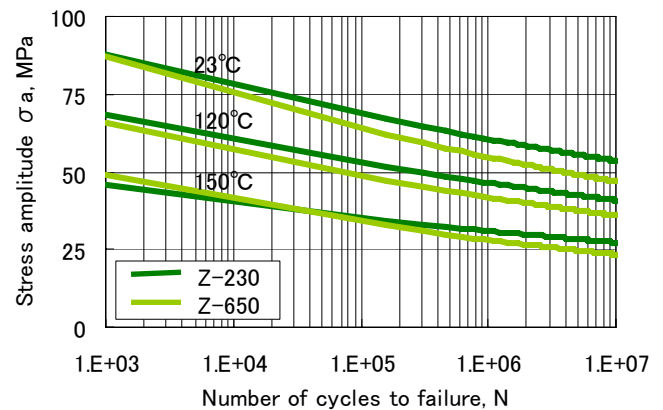


Fig.4 Flexral S-N curves of super tough grades



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