Allowable Conditions of Use of the TENITE Cellulosic Plastics

Use at High Temperatures

Two factors determine the highest temperature at which a plastic can be used: its strength at the temperature and its thermal stability. If only short periods of time are involved, softening of the plastic by heat is the principal limiting factor.

The 66-psi deflection temperature is frequently considered to be the highest temperature at which a plastic formulation is useful. However, if the stress on the plastic is less than 66 psi, brief use at higher temperatures is generally possible. Softening of the plastic limits the upper temperature of usefulness and soft flows.

The hardest flows of cellulose ester plastics have deflection temperatures so high that continuous use of the plastic at these temperatures would eventually result in degradation and embrittlement. Temperatures up to about 160°F (70°C) are not considered to be excessive for continuous use of the TENITE cellulosic plastics, and utilization for long periods at higher temperatures is often possible without excessive thermal degradation. This is particularly true if the environment is relatively inert—i.e., does not contain high concentrations of moisture, oxygen, or active chemical compounds. Even the hardest flows of cellulose ester plastics can generally be used at least a few days at their 66-psi deflection temperatures.