



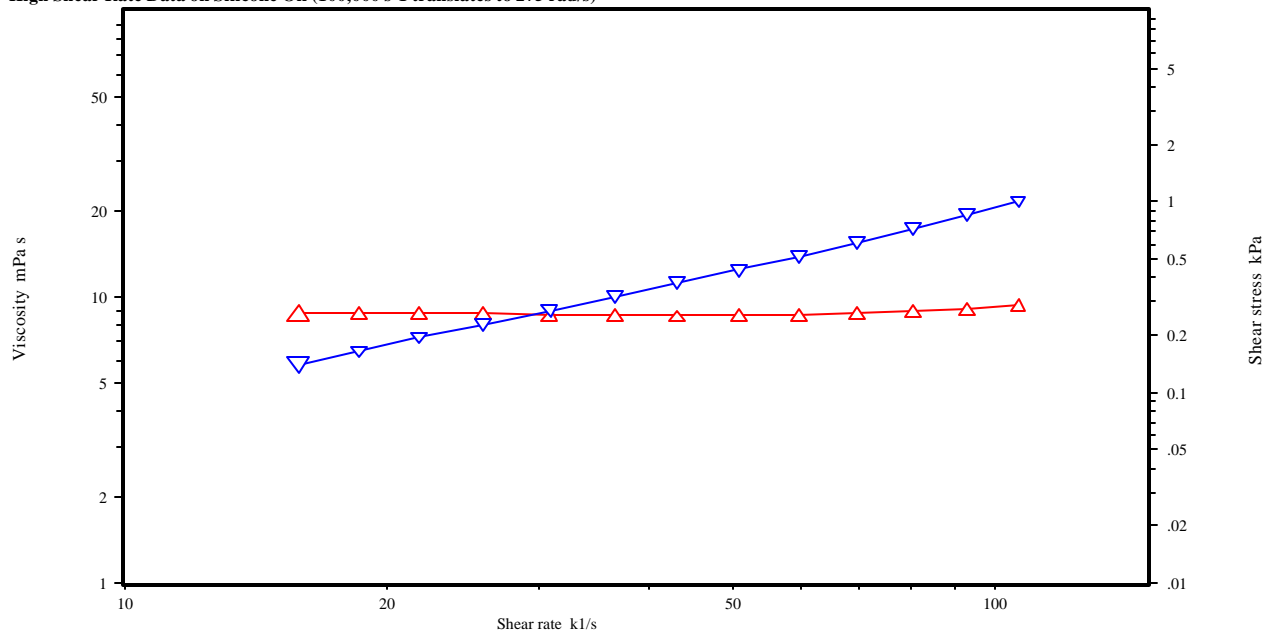
# High Shear Rate Experiments

Many times experiments at high shear rates are required to characterize materials that undergo processing such as spraying, milling, coating and lubrication. The ability of a research rheometer to make measurements in the shear rate regime of  $100,000 \text{ s}^{-1}$  is predicated on two factors; 1) the maximum rotational speed available from the rheometer, and 2) the measuring system geometric conversion factor. Since most rheometer manufacturers utilize standard measuring system geometries, based on acceptable standards like DIN or ASTM, the variable controlling the high shear rate performance of a rheometer is the maximum rotational speed. Shown are data from STRESSTECH on a nominal 10 cPs silicone oil. A shear rate of  $107,000 \text{ s}^{-1}$  translates to an angular velocity of  $275 \text{ rad/s}$  with a 40 mm parallel plate measuring system.

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High Shear Rate Data on Silicone Oil ( $100,000 \text{ s}^{-1}$  translates to  $275 \text{ rad/s}$ )



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-△- Viscosity  
-▽- Shear stress

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