

Reliability Assessment of ViSmart™ Viscosity Sensor

A 185 hour compatibility test was performed using six sensors in six fluids. The materials tested include gasoline (Mobile 87 octane), n-propanol, ethylene glycol in water, flexolam white ink (Coates), polyurethane (proprietary sample and 15N NaOH).

The readings from the SenGenuity sensor are presented as acoustic viscosity, which is cP x density. For purposes of this test, the sensors were not calibrated.

Sodium hydroxide had no negative effect (see Figure 1) until after prolonged heating at 60-90°C, and only then after becoming a gel. The alkali attacked both the 304 stainless steel and the epoxy seals, completely denaturing the epoxy.

Solvents, such as gasoline, n-propanol and acetone (in polyurethane), had no impact on the reliability of the sensors. The drift over nearly 8 days in flexolam ink was completely attributed to thickening of the sample from solvent loss. Similarly the resins in the polyurethane had no effect.

Destructive Test -- Low Viscosity

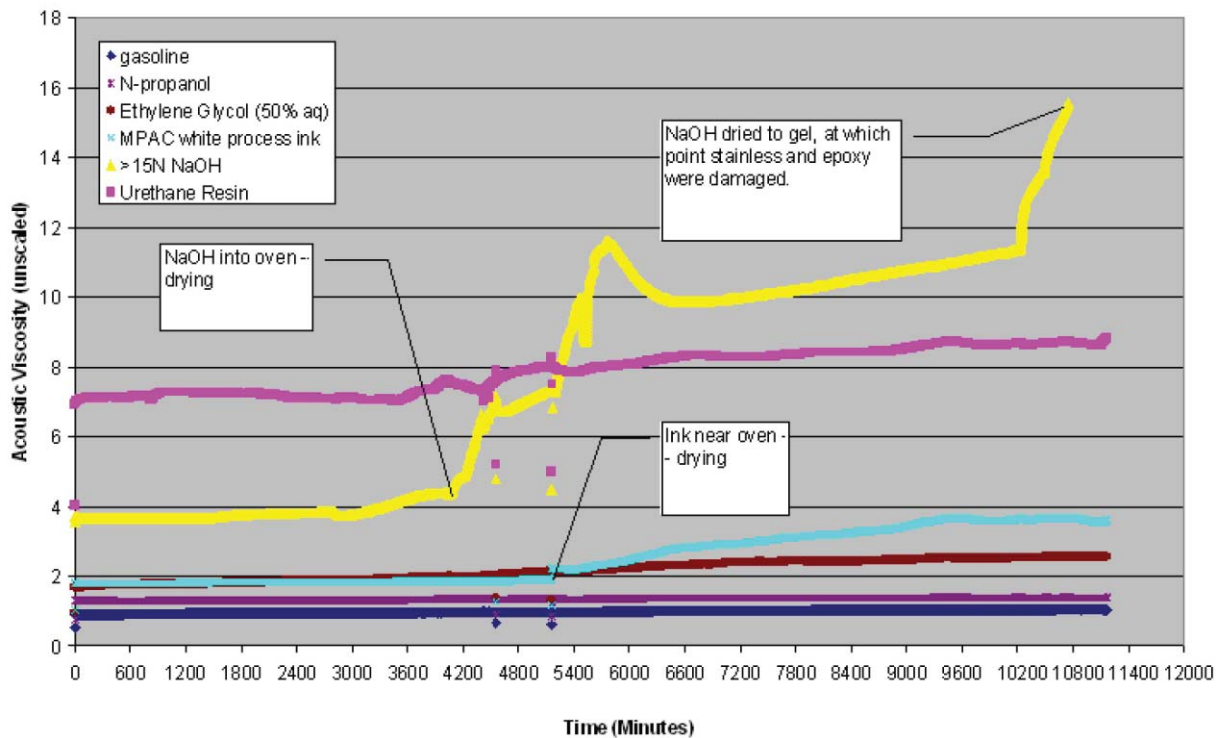


Figure 1: Six sensors in "low" viscosity compounds. Only NaOH (yellow) destroyed the subject sensor and then only after concentrating to a gel at elevated temperatures.

It is clearly evident the SenGenuity ViSmart™ sensor is extremely resistant to solvents and aqueous solutions.

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- Rev. A