

# Hardening process of rubber formation

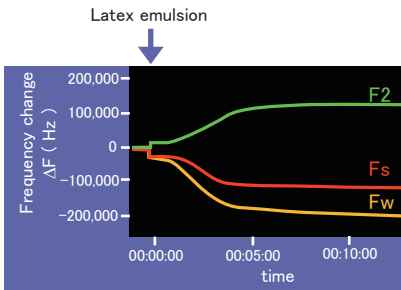
**Methods**

1. Measure basic frequency before addition of sample.
2. Add sample on electrode.

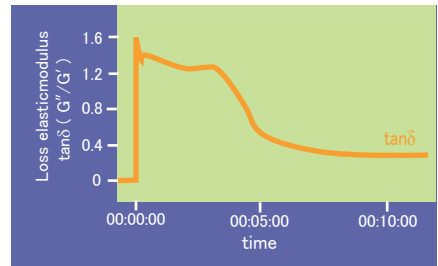
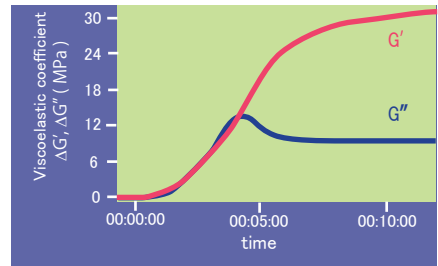


**Example**

## Monitoring of hardening process of latex emulsion



Analysis



Latex emulsion is viscoelastic material, but viscoelastic coefficient( $G'$ ) is small. It is concentrated by water evaporation and the viscosity is increased little by little. And after complete water evaporation, the viscosity change is stopped, but rubber hardness is progressed more and more.

The phenomenon can be monitored by analyzing dissipation coefficient( $\tan \delta$  ( $G''/G'$ )).

\* Viscoelasticity of ligid materials is not possible to measure.

**Application**

1. Monitoring gelation process(strength/hardness, gelation time etc.)
2. Viscoelastic measurement of soft materials(colloid, polymer etc.)