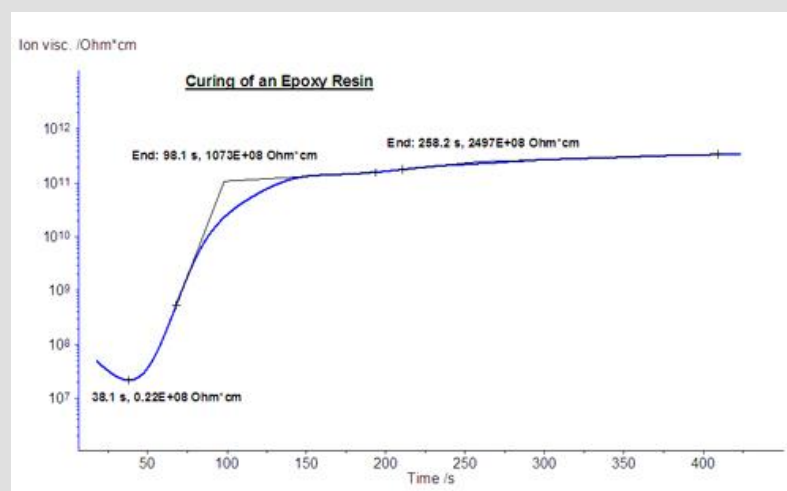


## Press Release

Analyzing & Testing  
Business Unit

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### Cure Monitoring of Thermosetting Resins for Fiber-Reinforced Plastics (FRP) by Dielectric Analysis (DEA)



The modular concept of the new Dielectric Analyzer DEA 288 *Epsilon* by NETZSCH Analyzing & Testing allows for the study of the curing behavior of thermosetting resins and composites. It can be successfully used not only in the laboratory environment but also in the industrial process (in-situ). Simultaneous multi-channel and multi-frequency measurements at high data acquisition rates are useful for even high-speed curing processes.

The example depicts the curing curve of a liquid epoxy resin injected in a mold with carbon fiber layers by Resin Transfer Molding (RTM). The reusable tool mount sensor (TMS) was used at a frequency of 10 Hz and a mold temperature of 80°C.

Initially, the measured ion viscosity drops due to the increase in temperature; the minimum value represents the lowest viscosity and therefore the best flow behavior of the resin for penetrating the fiber layers.

Curing starts immediately thereafter, with an increase of more than four orders of magnitude. The slope correlates with the high reactivity of the resin. After 258 s, a second curing step is detected. After approx. 300 s, the ion viscosity curve levels out, signaling that curing is practically completed and the part can be safely de-molded.

To get more information for a special application – please do not miss to visit our booth N64 at the JEC 2013 in Paris.