

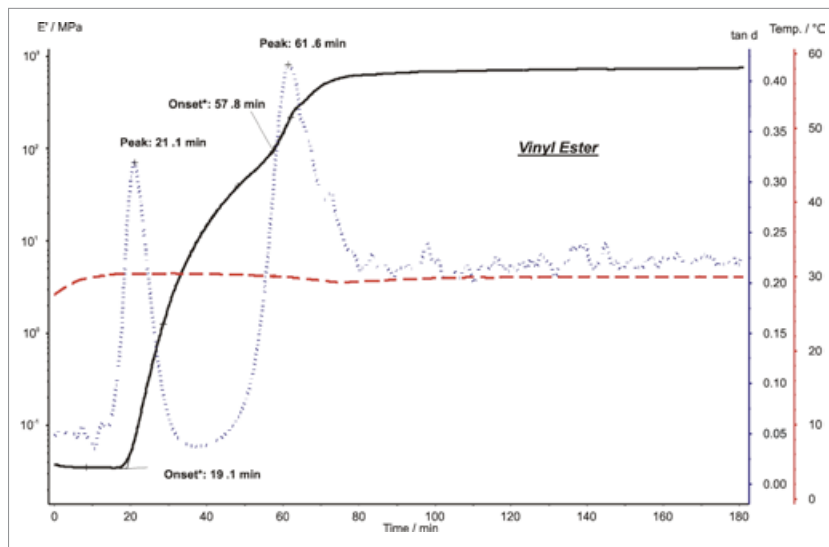
APPLICATION SHEET

POLYMERS – AUTOMOTIVE

VINYL ESTER RESIN

Vinyl ester resins have properties intermediate between those of epoxy resins and unsaturated polyester resins. After curing, they have similar good thermal and mechani-

cal properties like epoxy resins. In comparison with unsaturated polyester resins, they have a very good chemical resistance. They are mainly used in transport products.



Instrument
DMA 242 C

Test Conditions

Temperature range	isotherm, 30°C, 3 hours
Sample holder	special sample holder for liquids
Frequency	1 Hz
Amplitude	$\pm 50 \mu\text{m}$
Atmosphere	static air
Proportional factor	0
Max. dynamic force	7.2 N
Sample preparation	mixing of resin and catalyst (98:2)

Results

The storage modulus increases after 19 minutes, which indicates the beginning of the curing process. It corresponds to a peak at 21 minutes in the $\tan \delta$ curve. A second step during curing was detected at 58 minutes (onset temperature of the storage modulus curve). The related peak in the $\tan \delta$ curve was determined at 62 minutes. Curing is finished after approximately 72 minutes when the storage modulus has become nearly constant.