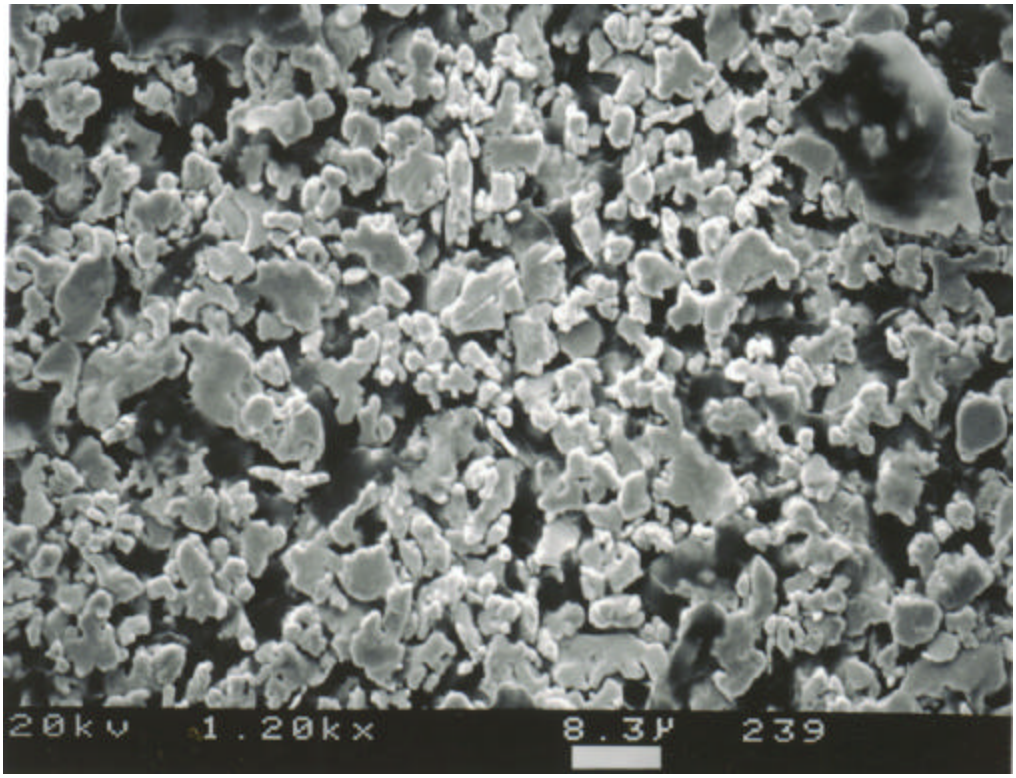

Figure 3. 1 Scanning electron micrograph of a conductive adhesive with silver flakes distributed in the epoxy matrix.

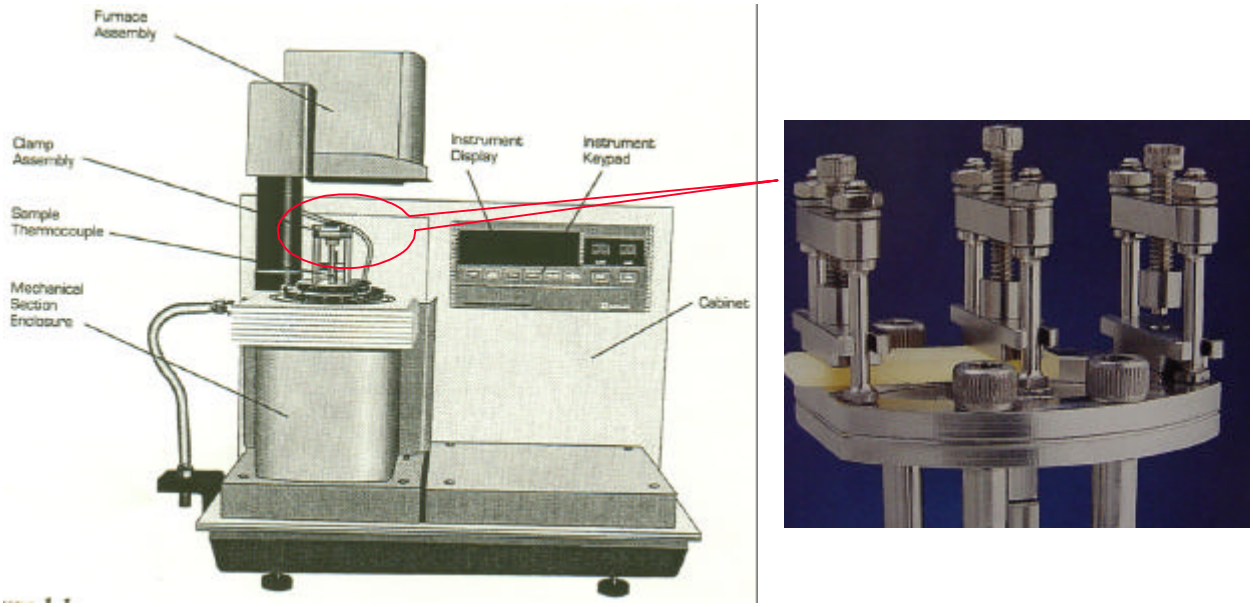

Figure 3. 2 The TA Instruments Dynamic Mechanical Analyzer with a single cantilever clamp [35].

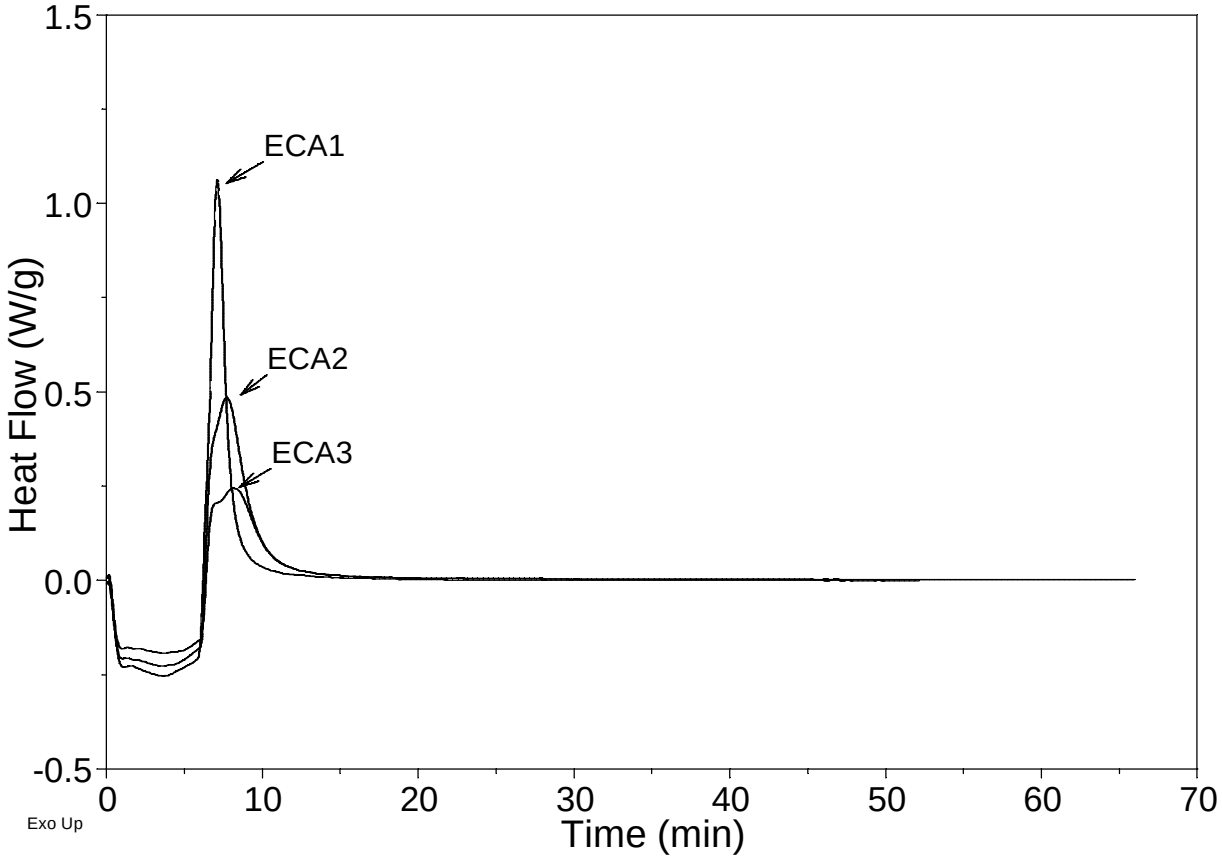

Figure 3. 3 Isothermal DSC scans at 150°C on ECA1, ECA2 and ECA3 adhesives

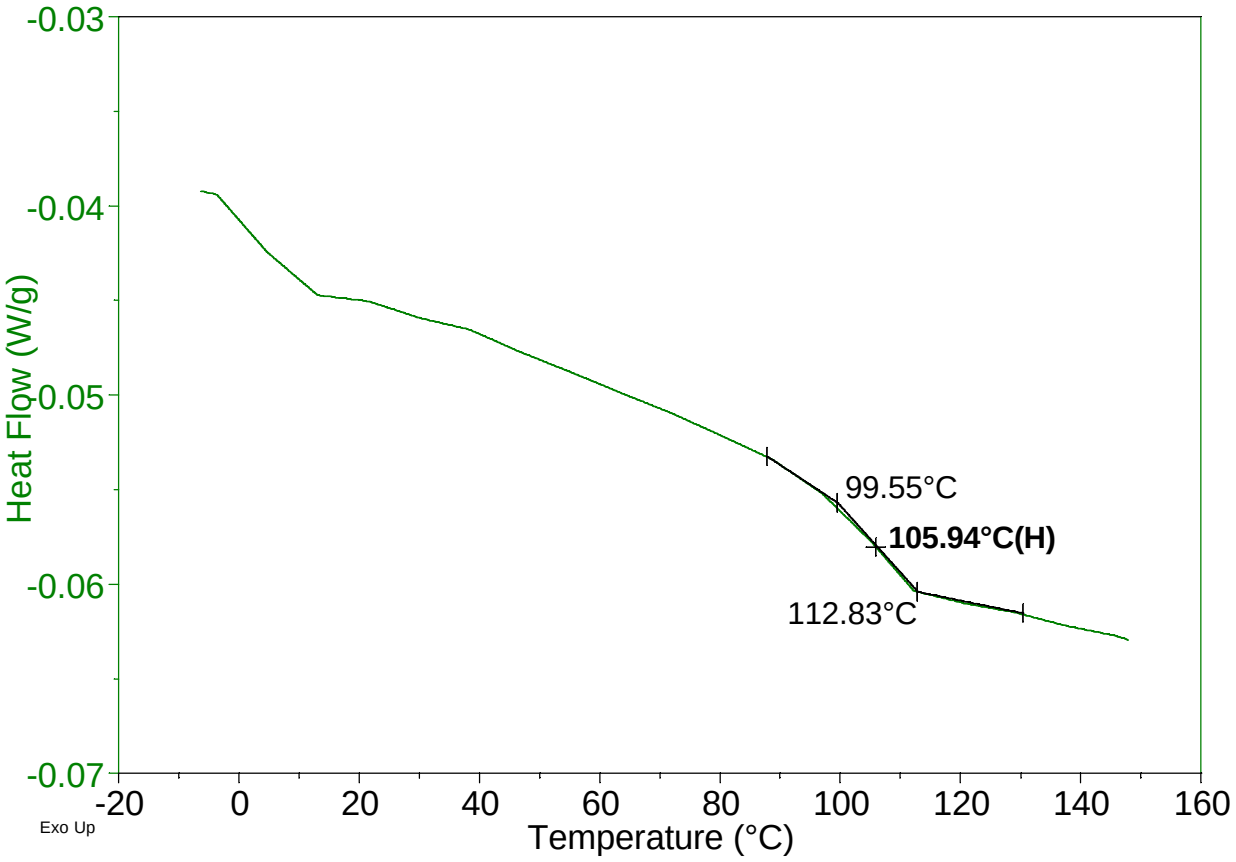

Figure 3. 4 DSC trace of as-cured ECA1 conductive adhesive sample.

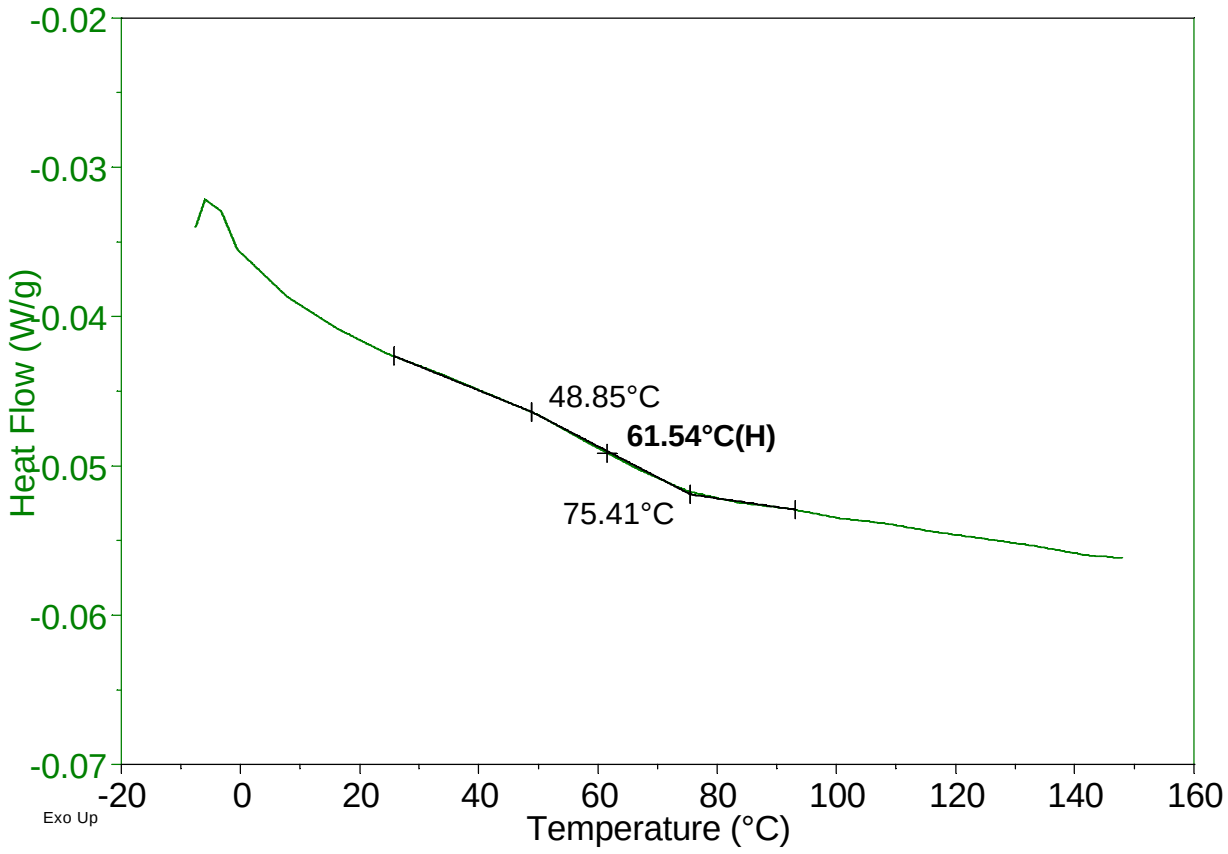

Figure 3. 5 DSC trace of as-cured ECA2 conductive adhesive sample.

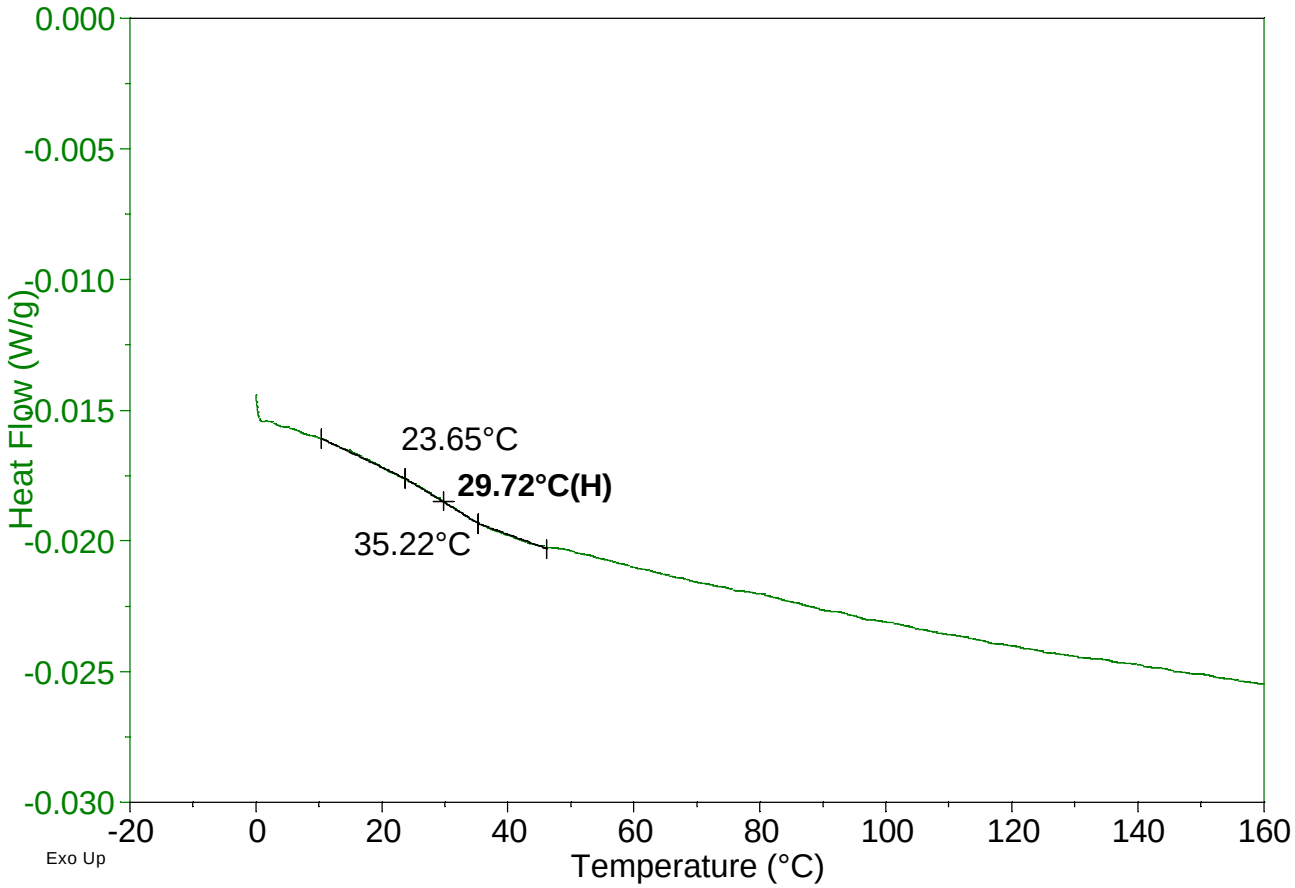

Figure 3. 6 DSC trace of as-cured ECA3 conductive adhesive sample.

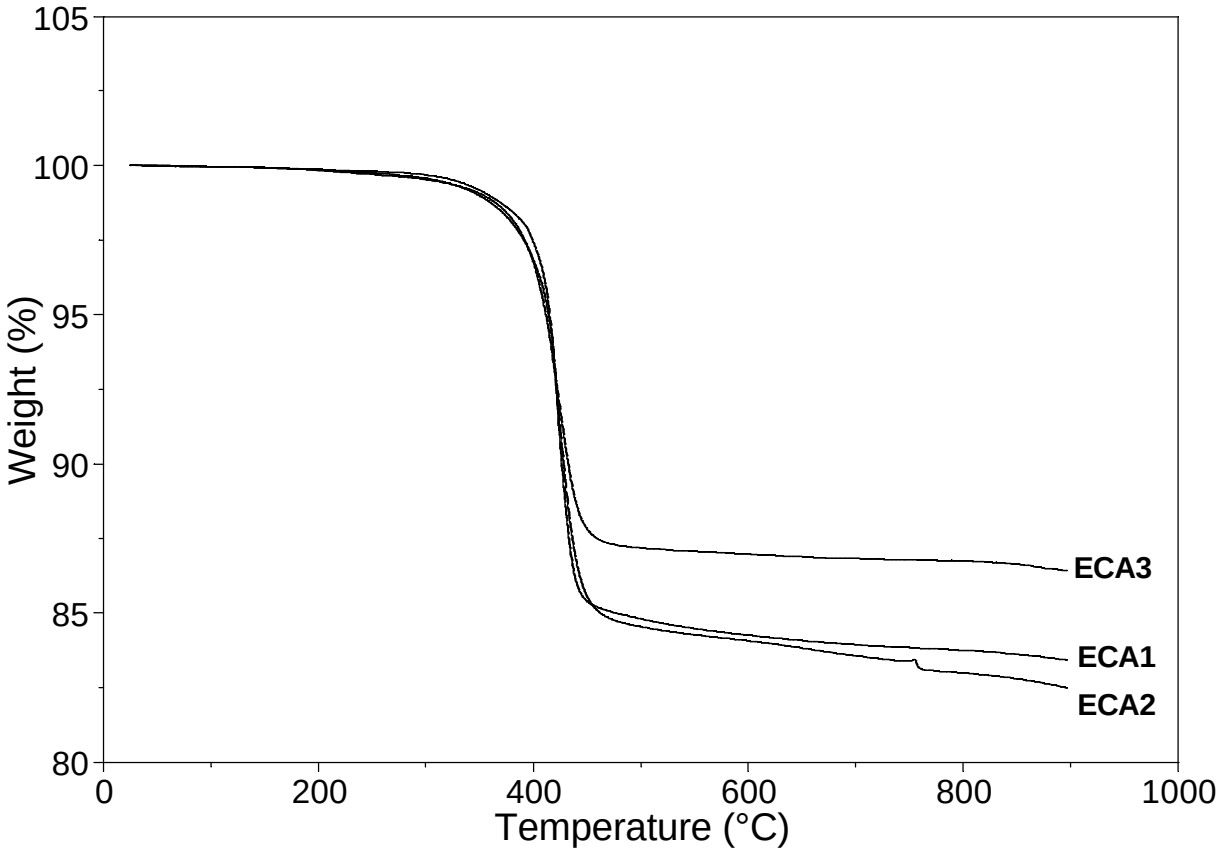

Figure 3. 7 TGA plots of as-cured electrically conductive adhesive samples.

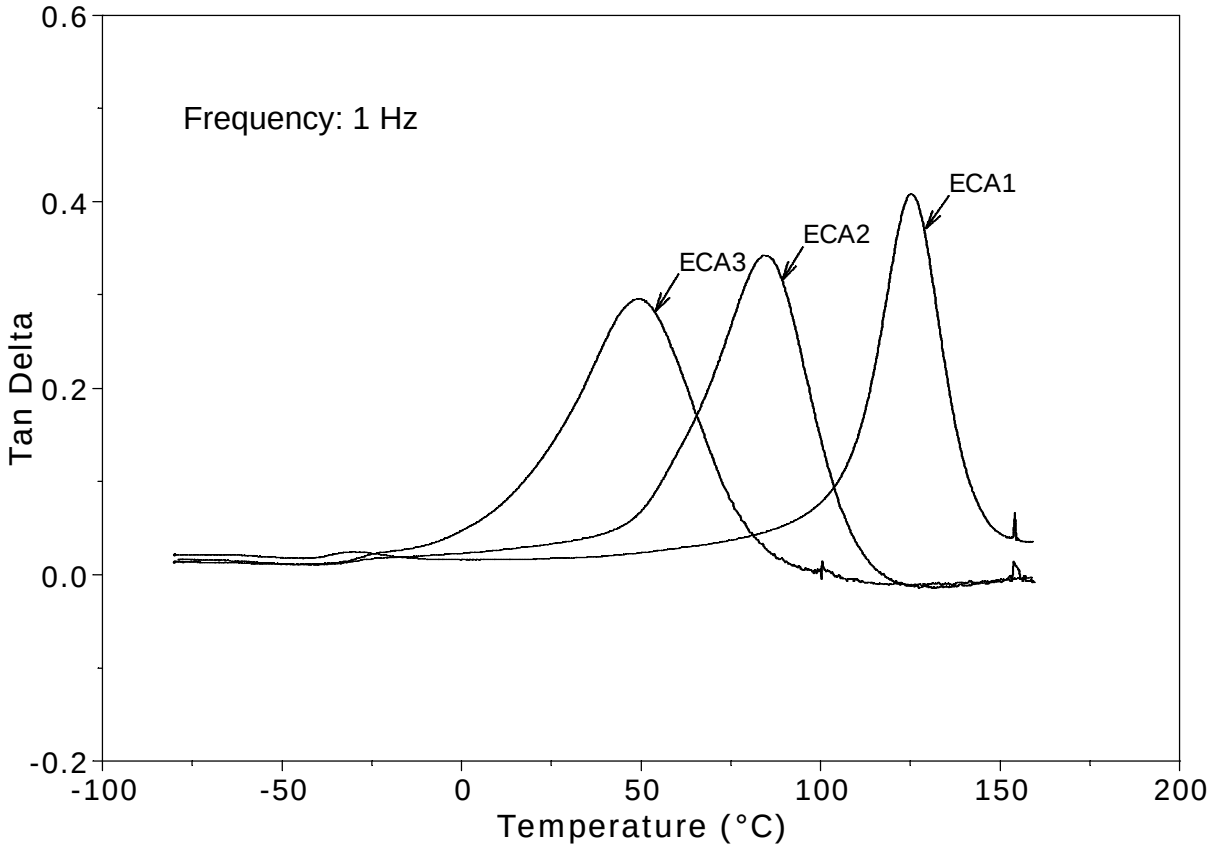

Figure 3. 8 Plots of tan δ of as-cured conductive adhesives obtained from DMA scans conducted at 1°C/min.

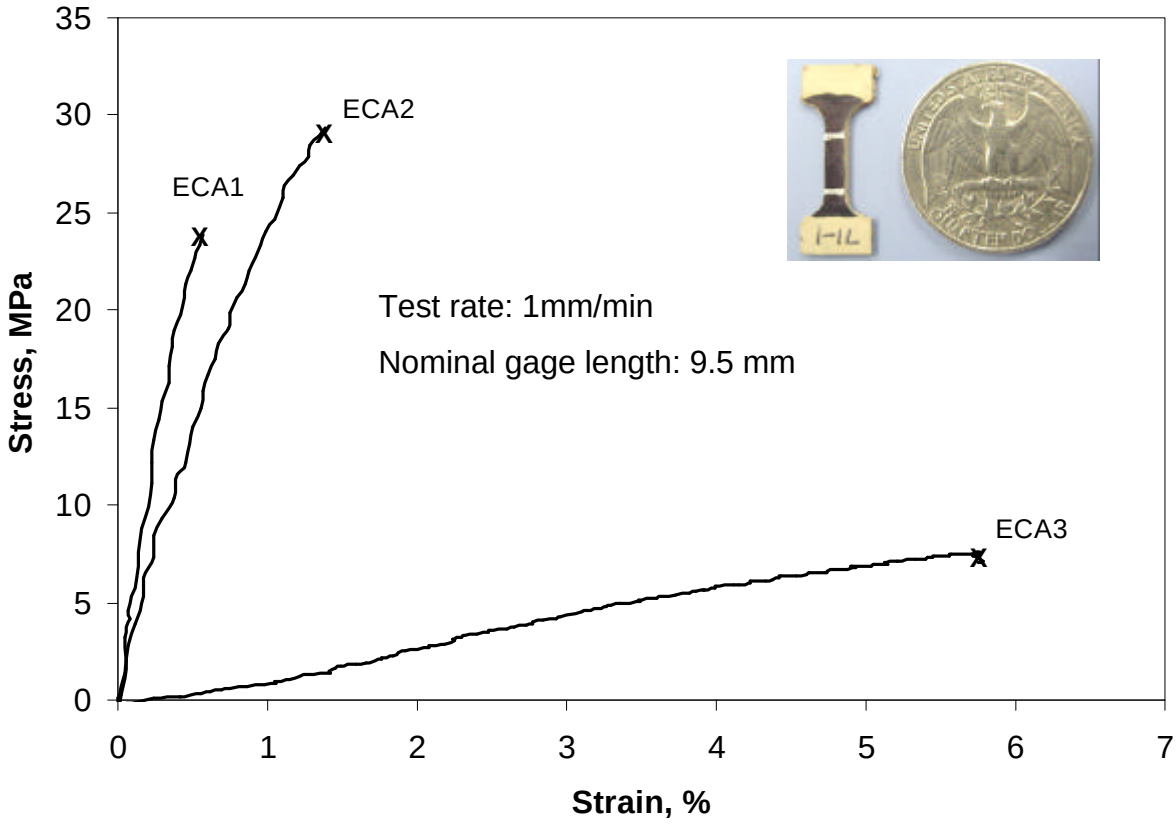

Figure 3. 9 Typical stress-strain behavior of as-received ECA1, ECA2 and ECA3 samples tested at room temperature.

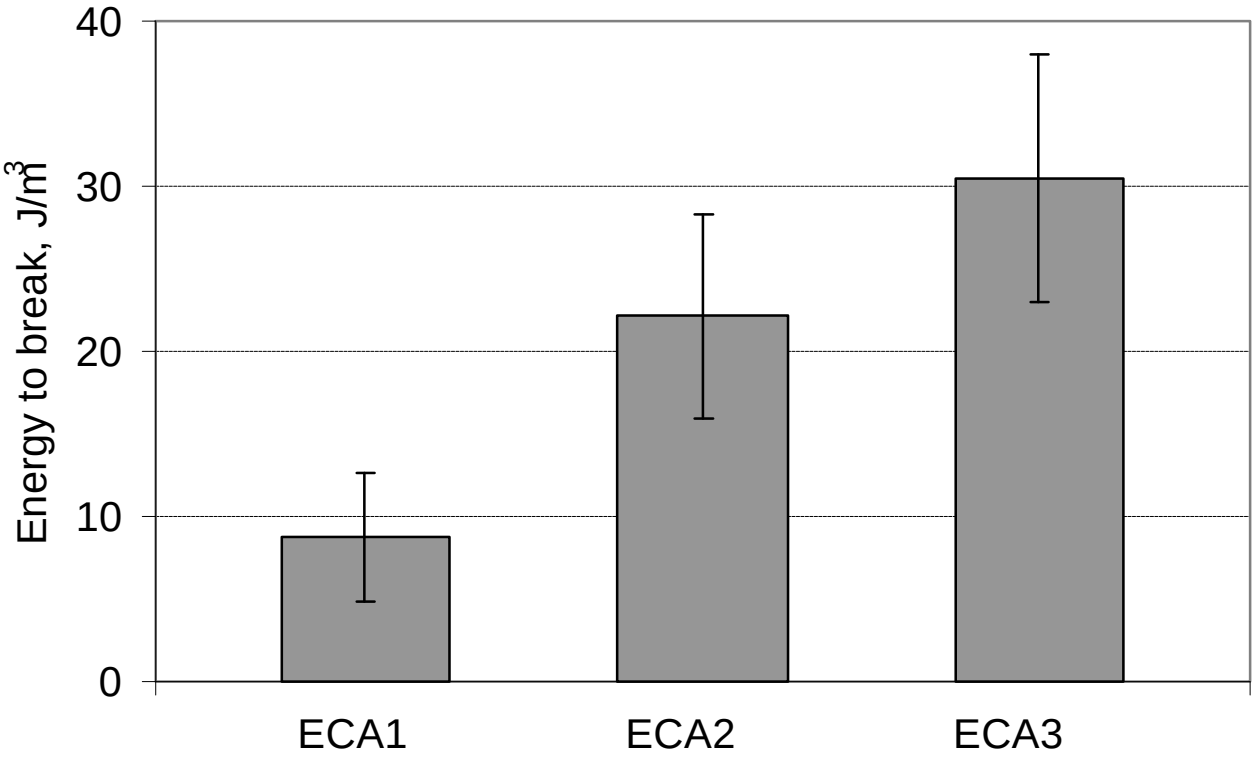

Figure 3. 10. Energy required to break ECA dogbone samples.

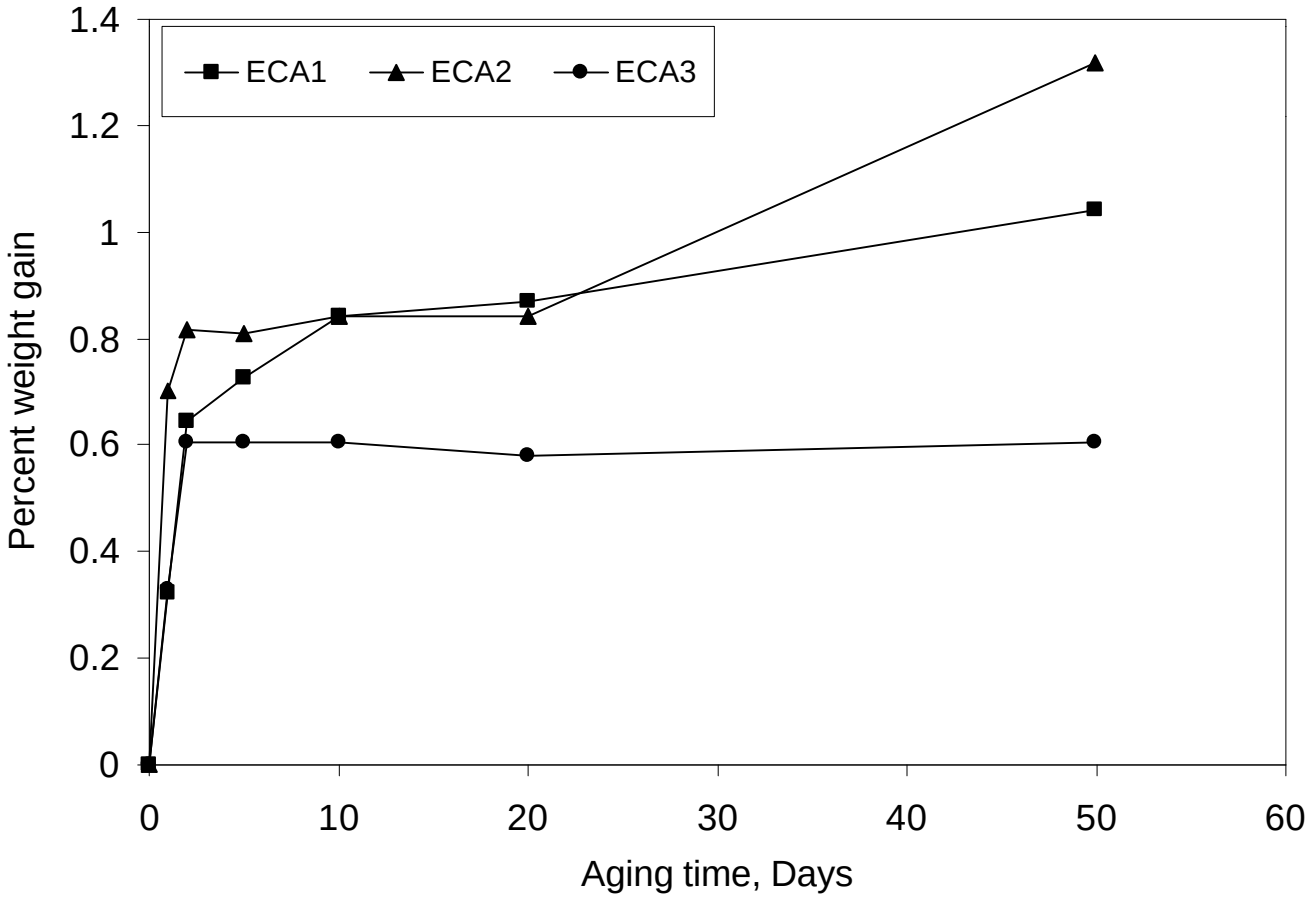

Figure 3. 11. Weight gain in ECA samples as a function of aging time, when exposed to at 85°C, 100% RH.

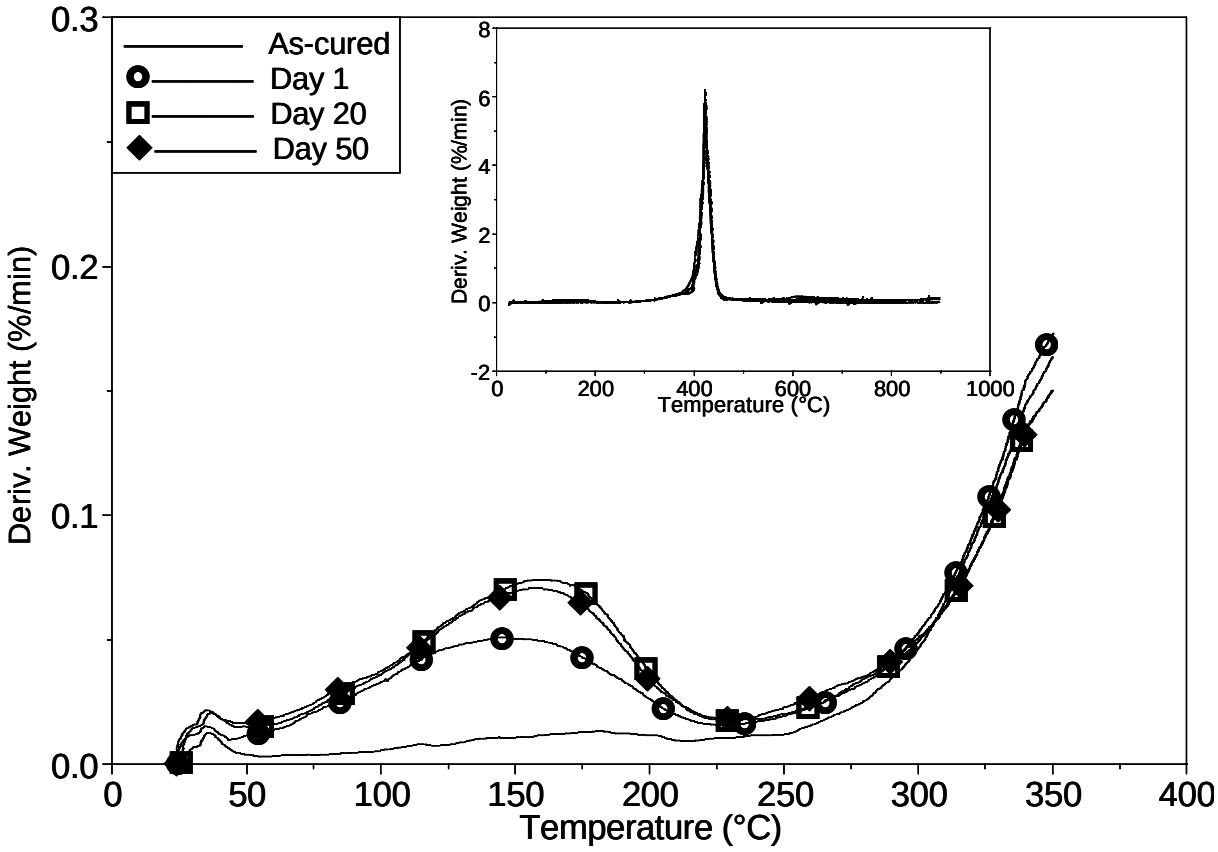

Figure 3. 12 Differential thermogravimetric thermograms of as-cured and aged ECA1 samples heated at 10°C/min in nitrogen.

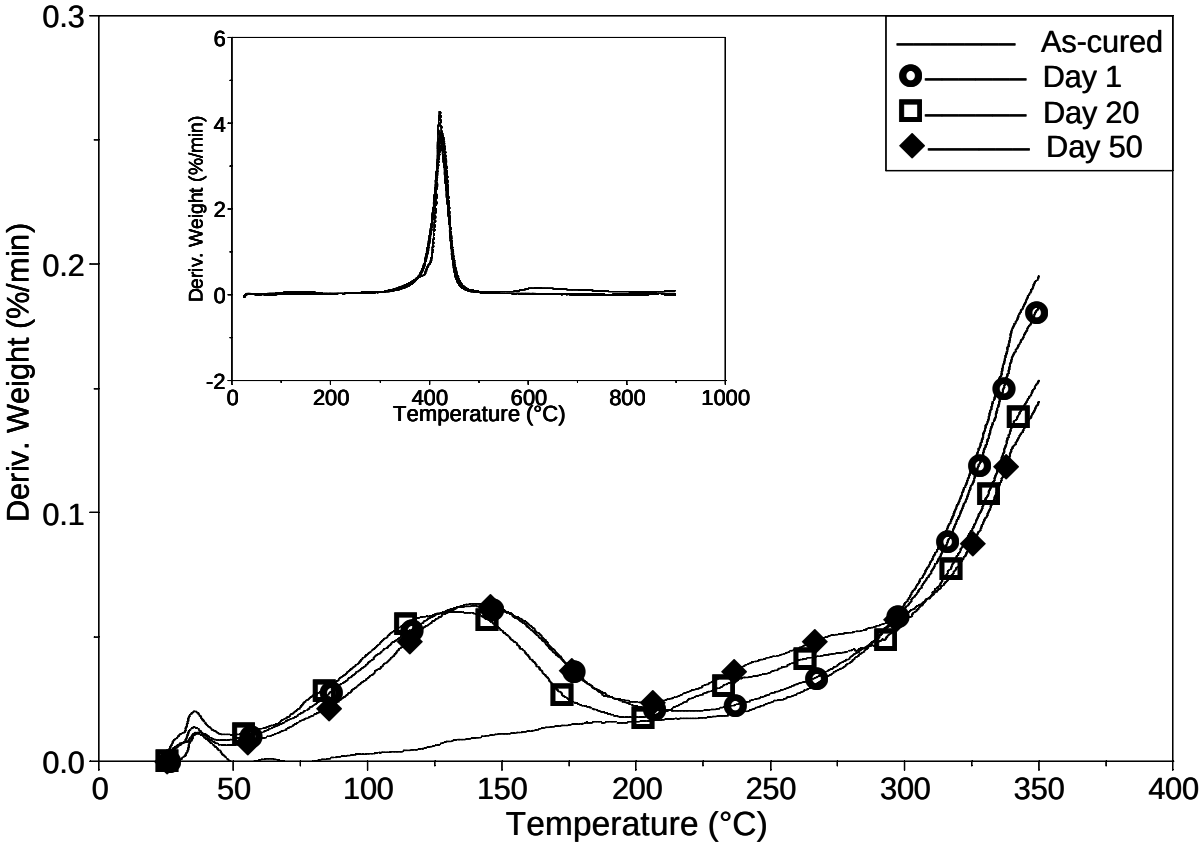

Figure 3. 13 Differential thermogravimetric thermograms of as-cured and aged ECA2 samples heated at 10°C/min in nitrogen.

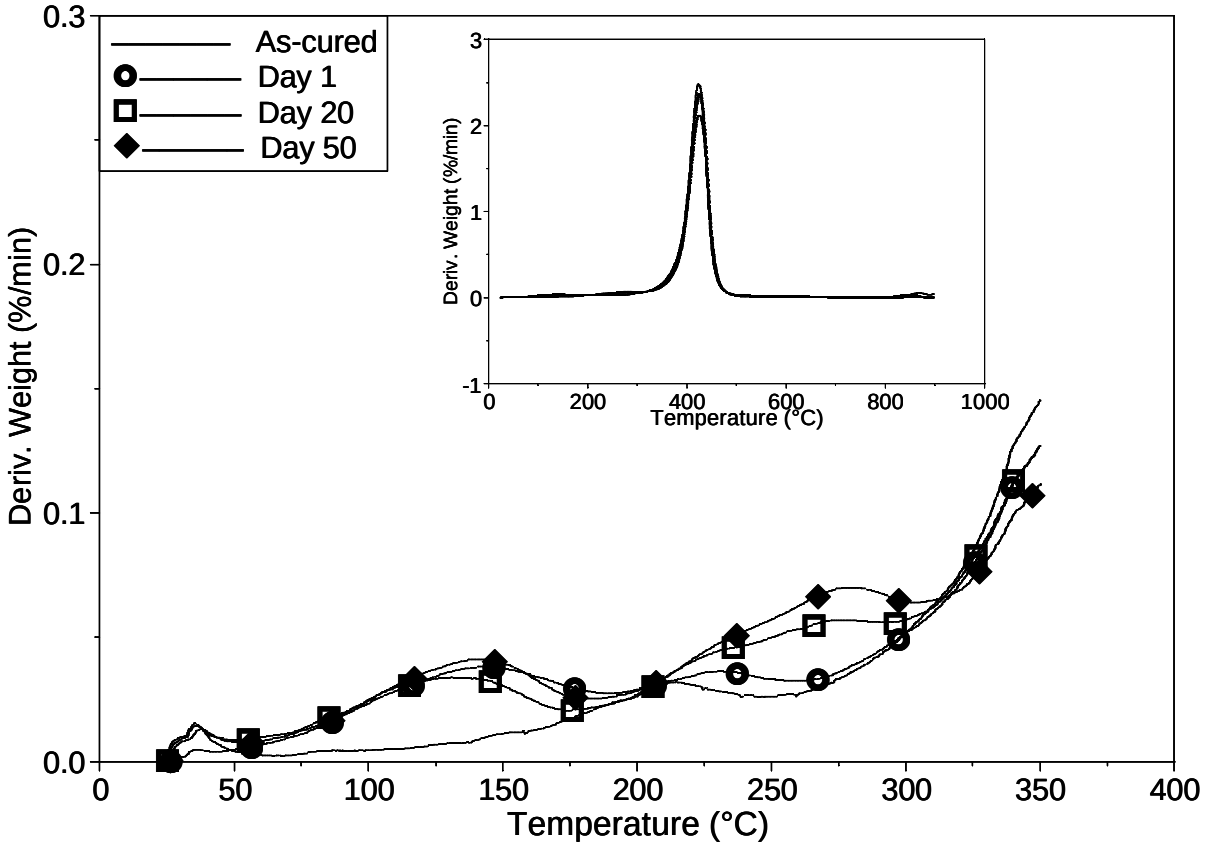

Figure 3. 14 Differential thermogravimetric thermograms of as-cured and aged ECA3 samples heated at 10°C/min in nitrogen.

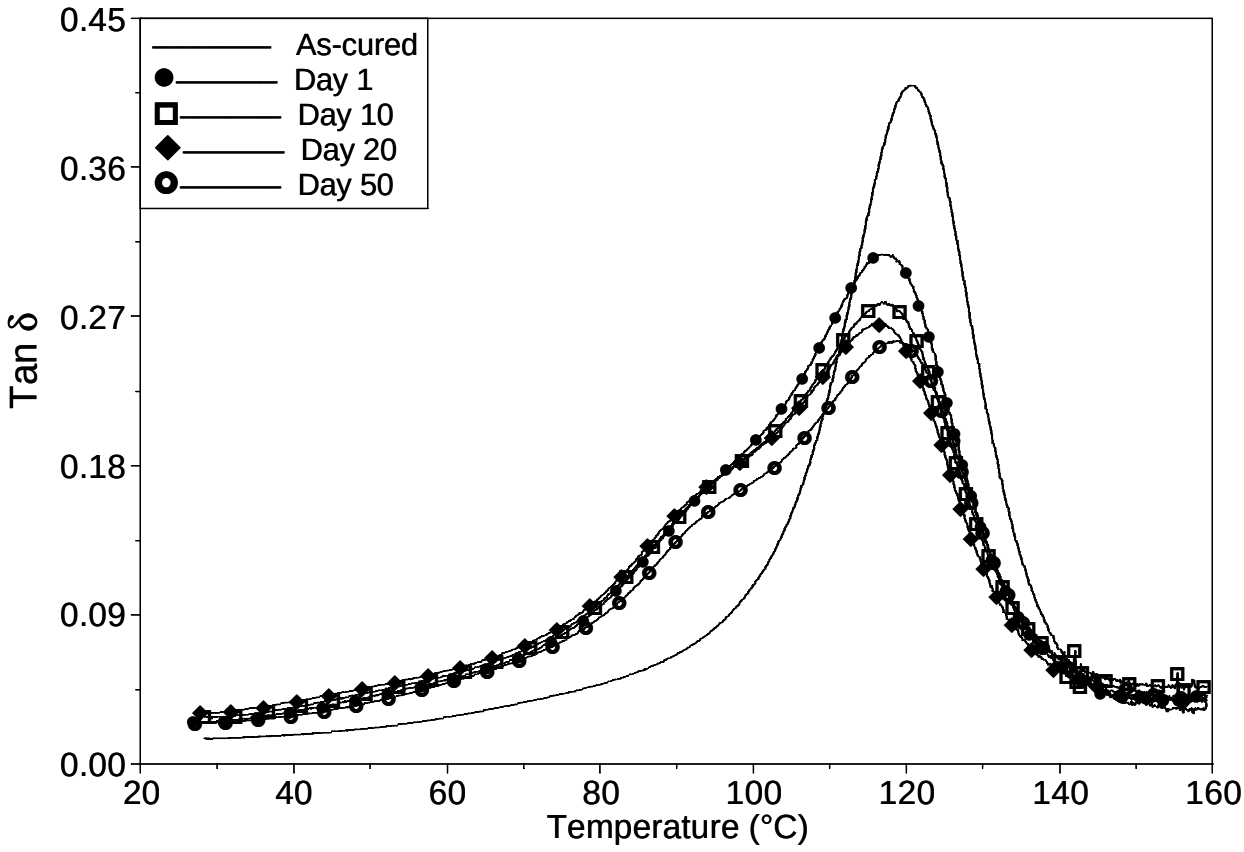

Figure 3. 15 Change of the loss factor of ECA1 as a function of aging time, as measured by DMA at 1Hz and 1°C/min.

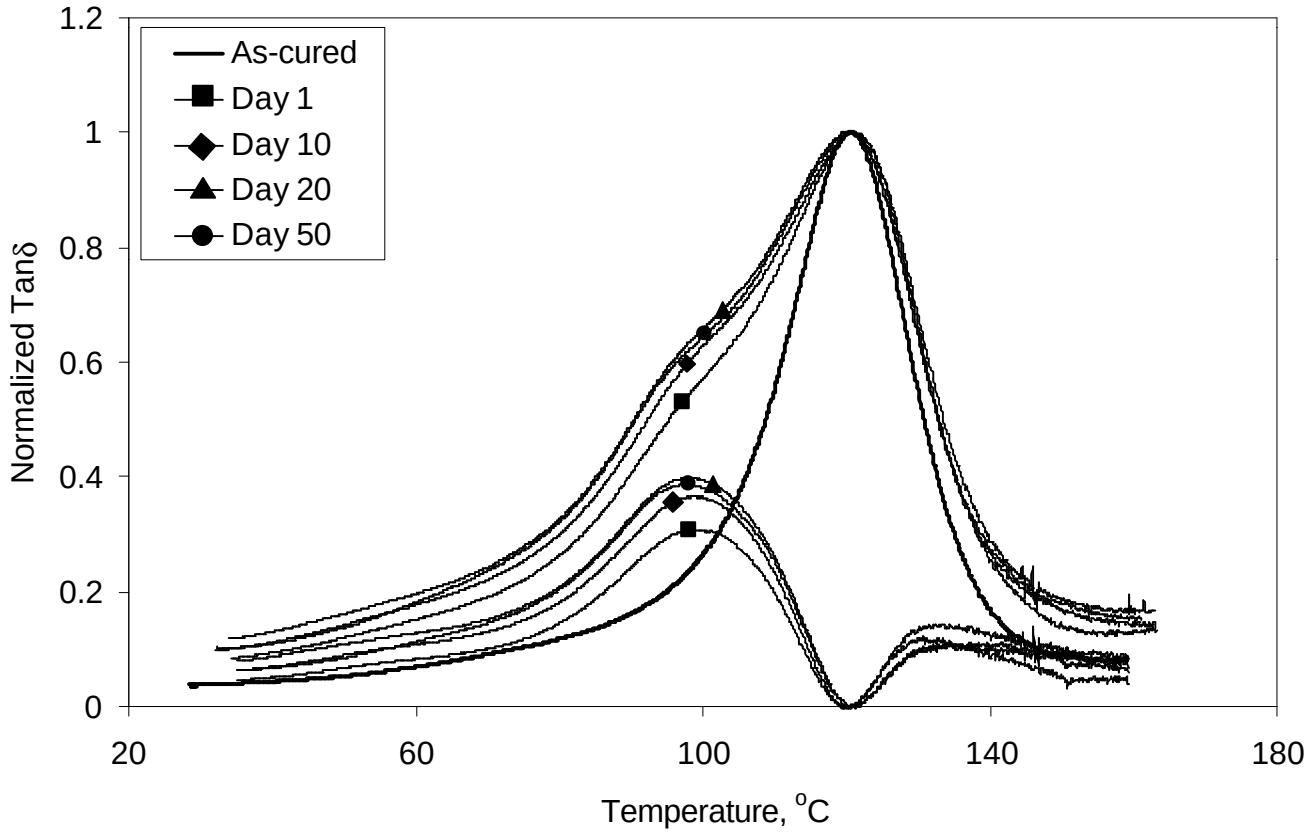

Figure 3. 16 Effects of moisture on the damping properties of ECA1, as measured by DMA at 1Hz and 1°C/min.

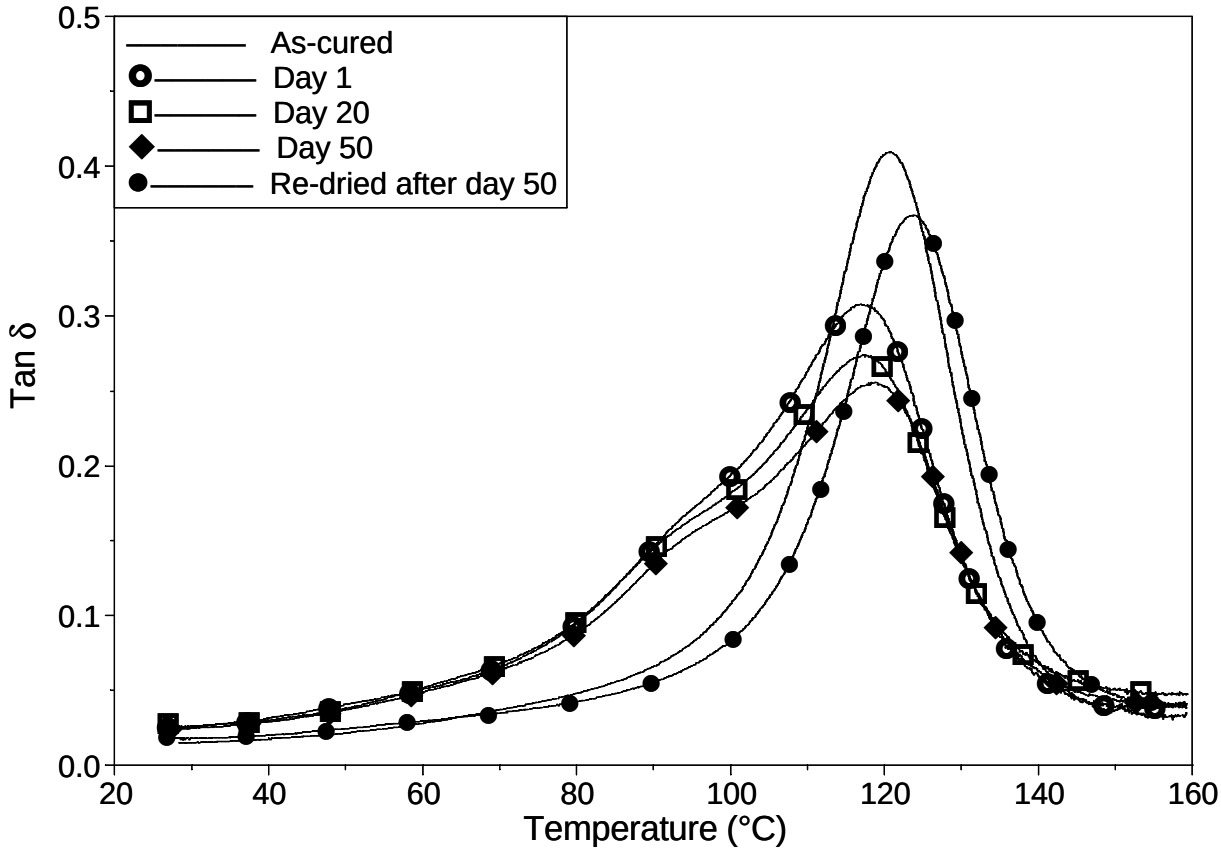

Figure 3. 17 The loss factor of aged and dried ECA1 samples, as measured by DMA at 1Hz and 1°C/min.

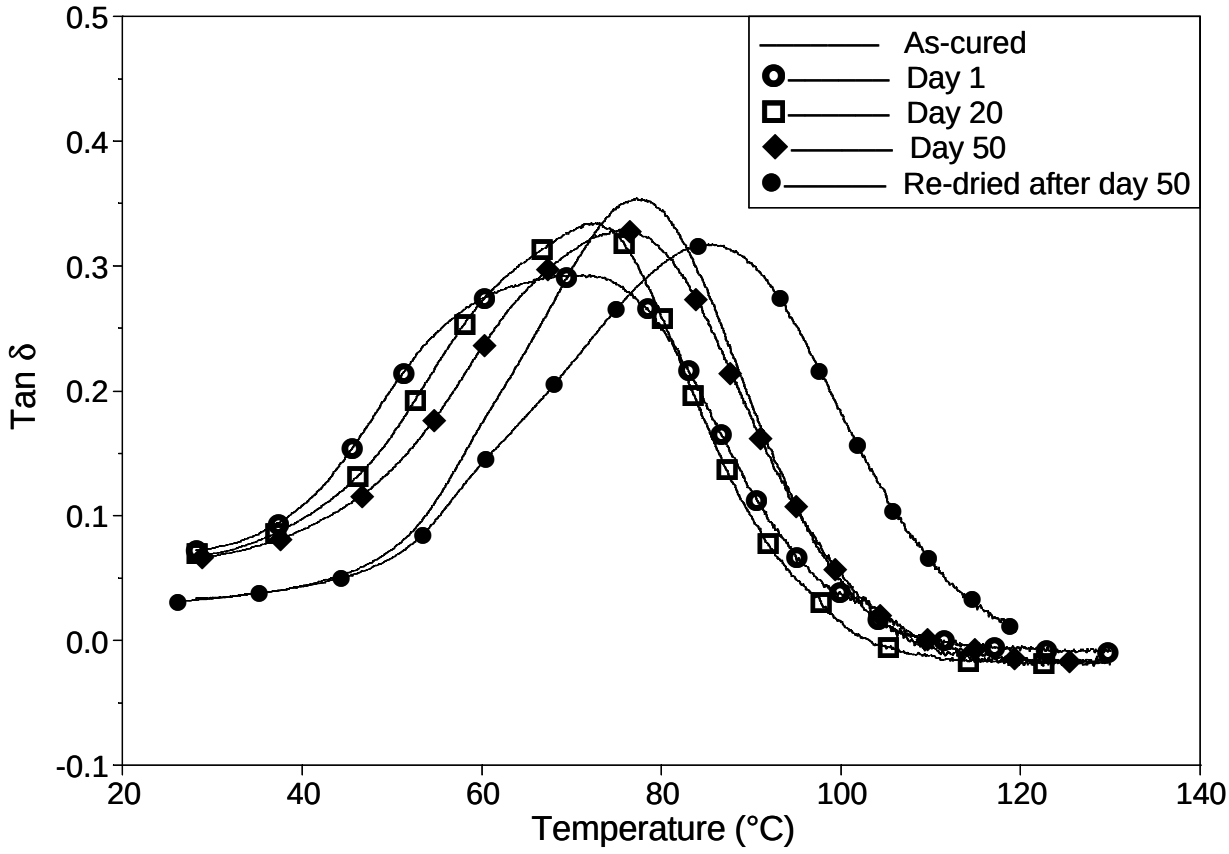

Figure 3. 18 The loss factor of aged and dried ECA2 samples, as measured by DMA at 1Hz and 1°C/min.

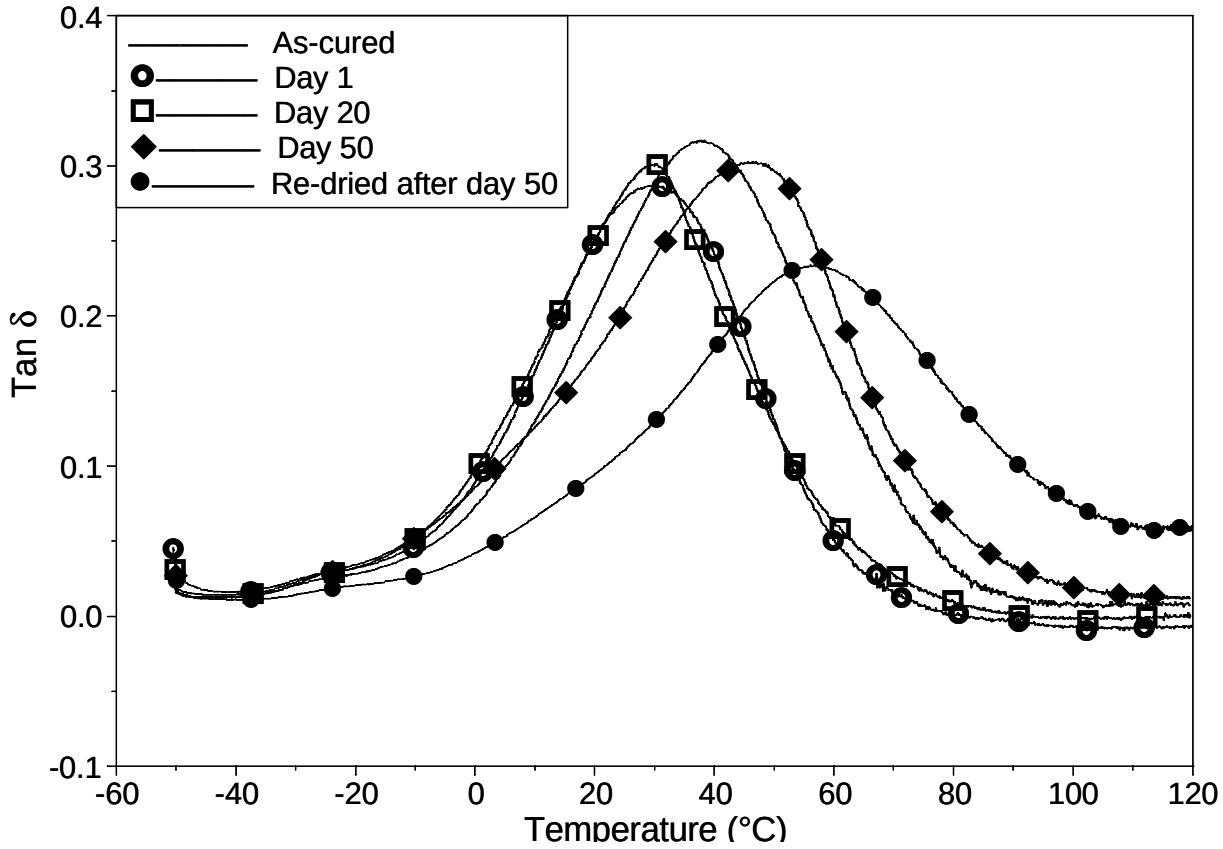

Figure 3. 19 The loss factor of aged and dried ECA3 samples, as measured by DMA at 1Hz and 1°C/min

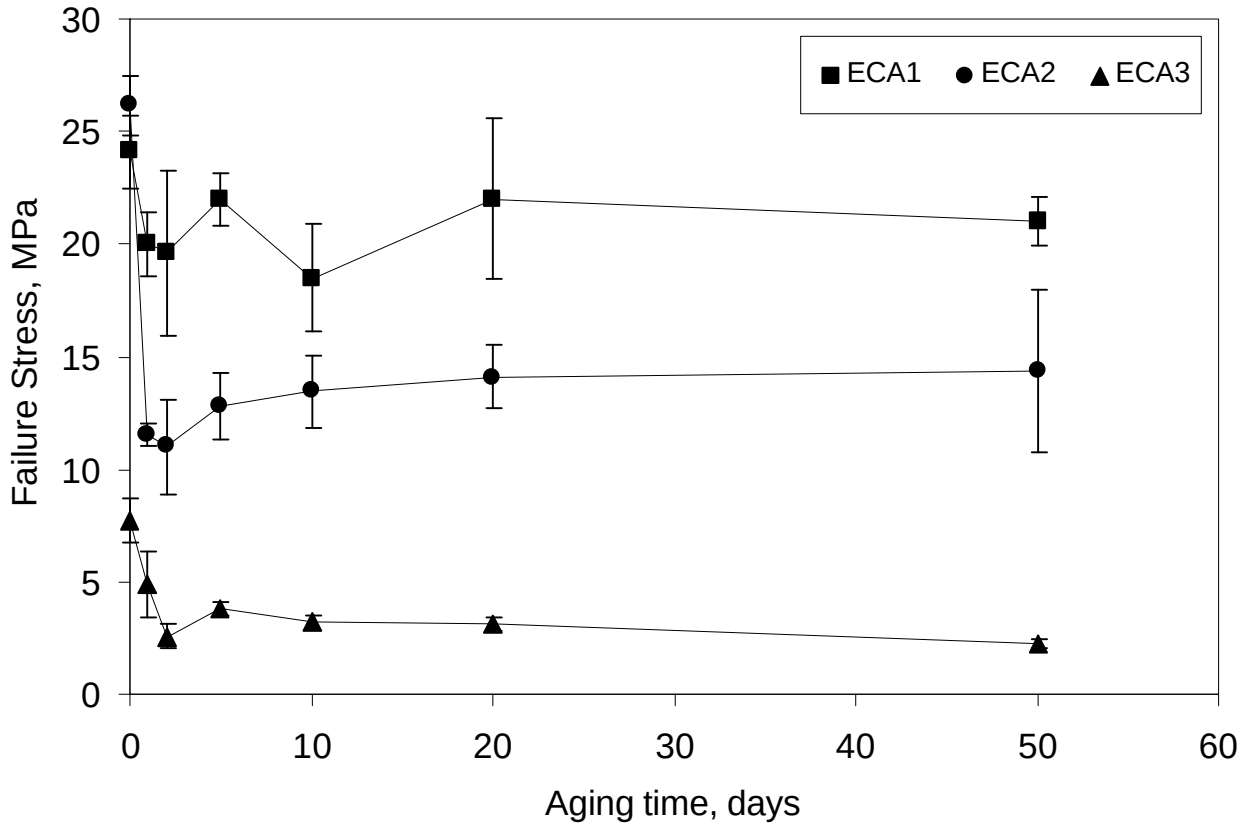

Figure 3. 20 Failure stress of ECAs as a function of aging time.

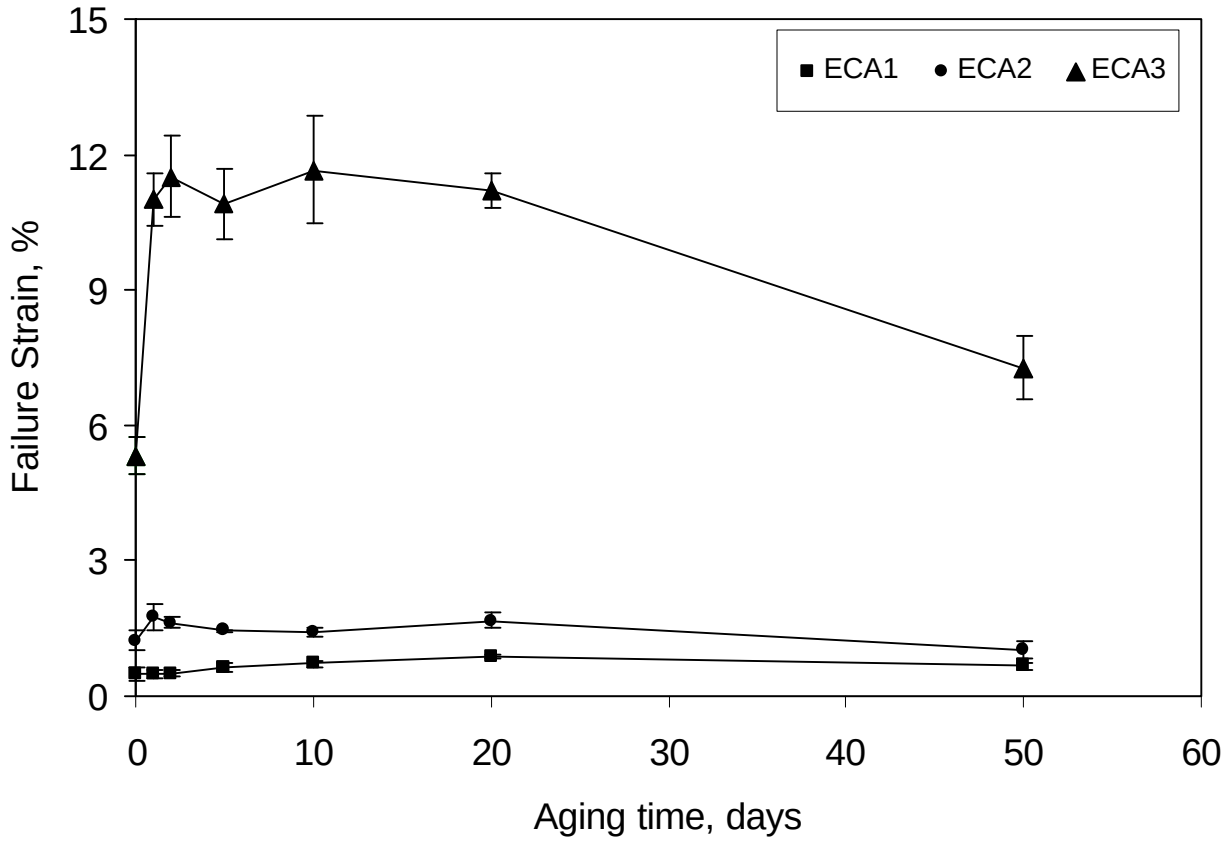

Figure 3. 21 Failure strain of ECAs as a function of aging time.

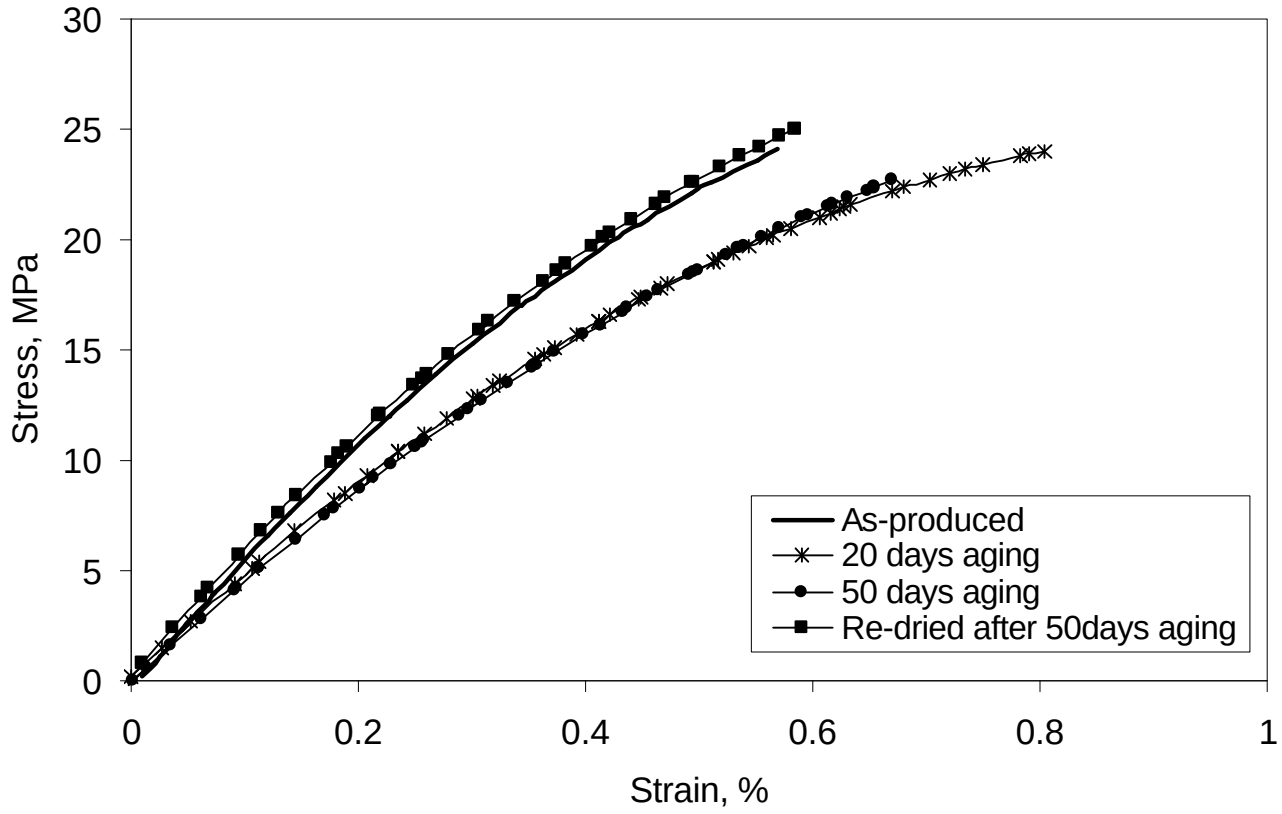

Figure 3. 22 Typical stress-strain curves from aged and dried ECA1 samples.

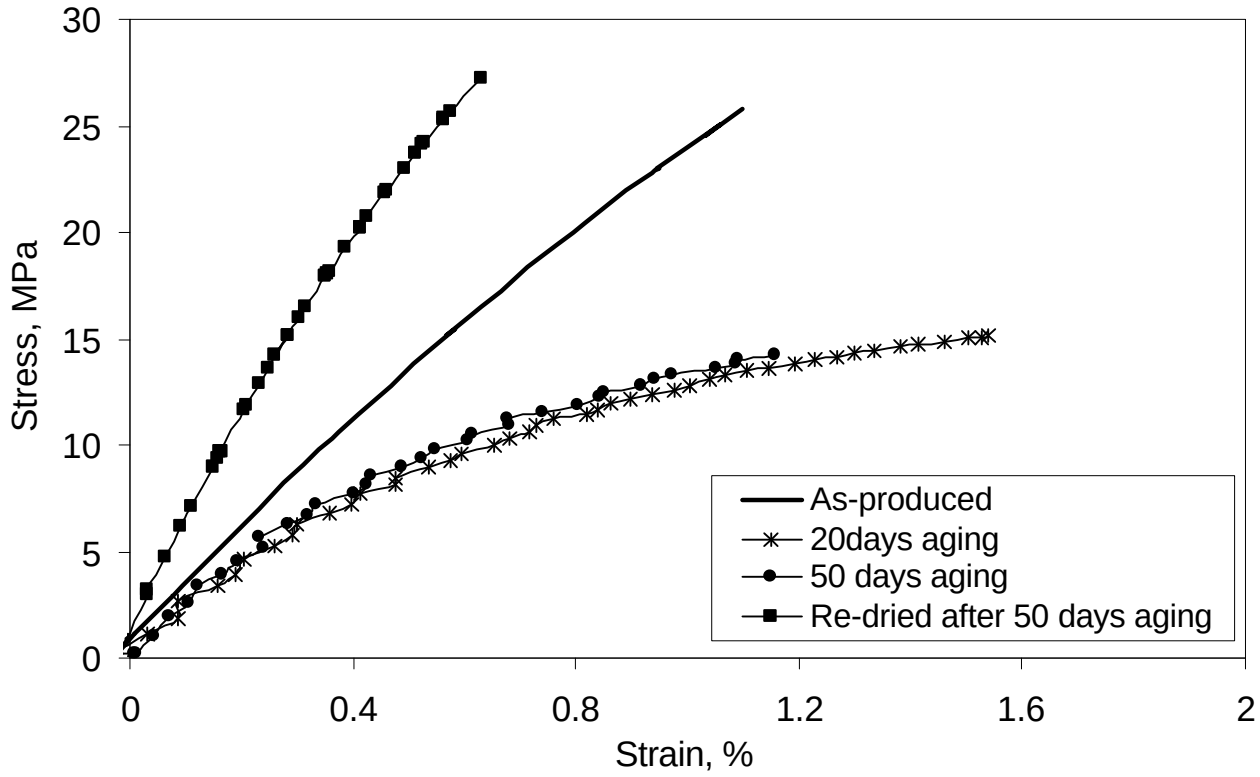

Figure 3. 23 Typical stress-strain curves from aged and dried ECA2 samples.

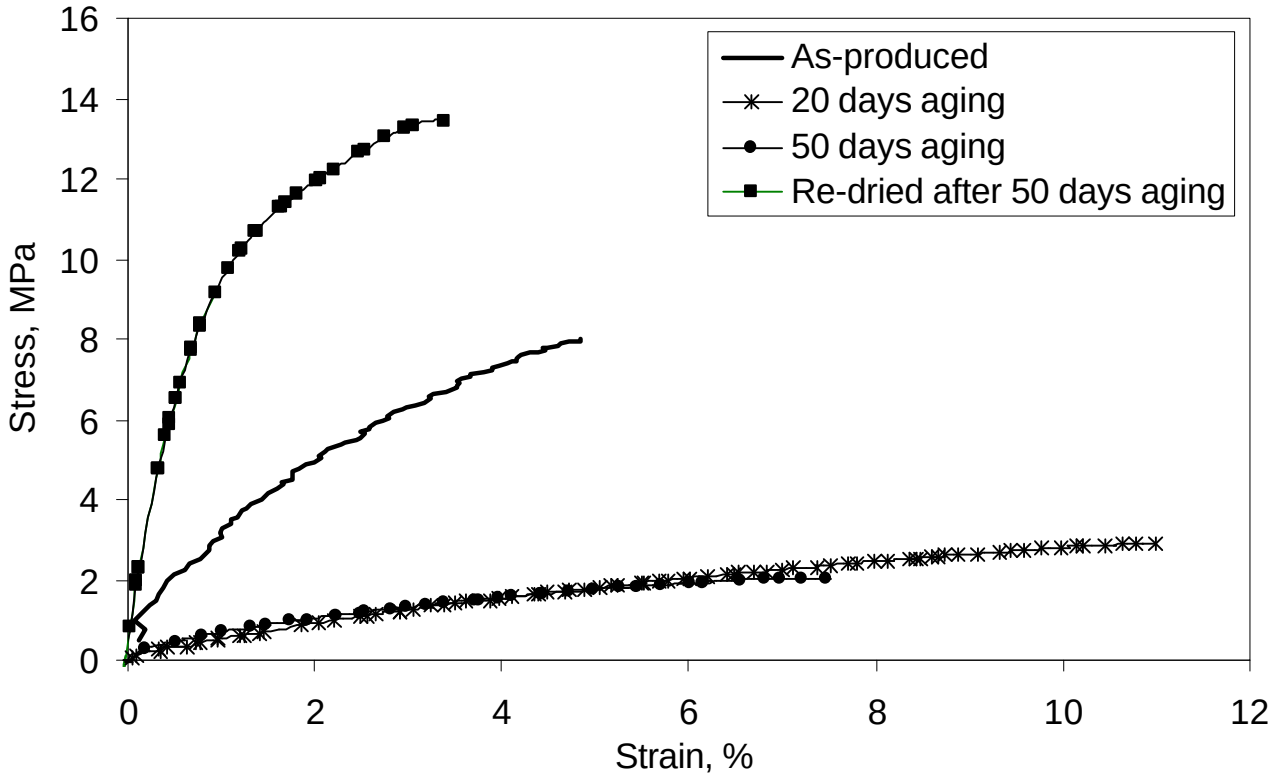

Figure 3. 24 Typical stress-strain curves from aged and dried ECA3 samples.