as-cast condition decrease linearly with increasing test temperature. The gradients of the lines are dependent on the compositions of the alloys.

The microstructural state of the material resulting from prior deformation influences in particular the magnitude of Young's modulus and the anisotropic behaviour of Poisson's ratio. Poisson's ratio is also influenced by the state of the primary as-cast microstructure.

A marked increase in damping was observed in the regions of the miscibility gaps. This suggests that the resonance method could be a sensitive technique for determining miscibility gaps in materials which can be subjected to mechanical oscillations and whose basic damping, d, is less than $10^{-3}$ (21). Further microstructural and crystallographic investigations are required to confirm these correlations.

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# Ruthenium-Initiated Star Polymers

Star-shaped polymers are attracting interest as polymeric materials because of their unusual structures. Such structures can be made by living polymerisation processes, one of which involves a linking reaction using living linear polymers and divinyl compounds.

Researchers at Kyoto University in Japan now report a multi-arm star-shaped polymer with a cross-linked microgel core (K.-Y. Baek, M. Kamigaito and M. Sawamoto, *Macromolecules*, 2001, 34, (2), 215–221). Using *in-situ* polymerisation of methyl methacrylate (MMA), a halide initiator and $RuCl_2(PPh_3)_3$, in the presence of $Al(O\text{-}i\text{-}Pr)_3$ a living poly(MMA) was formed which on reaction with a divinyl compound resulted in star-shaped polymers.

The yield depended on the structures of the initiators, divinyl compounds, monomers and other reaction conditions. The best system gave a polymer of about 20 poly(MMA) arms per molecule.