# FREE VOLUME STUDY OF REGULATED DIMETHACRYLATE NETWORKS BY PALS

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Nowadays, photopolymerization has a wide range of applications such as coatings, biomedicine, and 3D printing, which creates a demand for a broad range of material properties. The main drawback of state-of-the-art resins like dimethacrylates is the formation of shrinkage stress during the polymerization process which leads to rather inhomogeneous network structures and brittle material behaviour. Progress in material science has brought regulated dimethacrylate networks via thiol-ene-chemistry [1] or by implementation of additional fragmentation chain transfer (AFCT) reagents [2], which yield reduction of polymerization induced shrinkage stress and enable an increase in toughness of the cured materials. A deeper view into the microstructure and a complex understanding of structural dynamic relationships can markedly contribute to the explanation of final material properties.

In this present study, we extend a first pilot PALS study on regulated dimetacrylate-based networks[3] to the relations between the microstructural characteristics from the PALS temperature measurements and macroscopic thermo-mechanical and dynamic properties obtained by standard techniques (TMA, DMA, DSC).

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