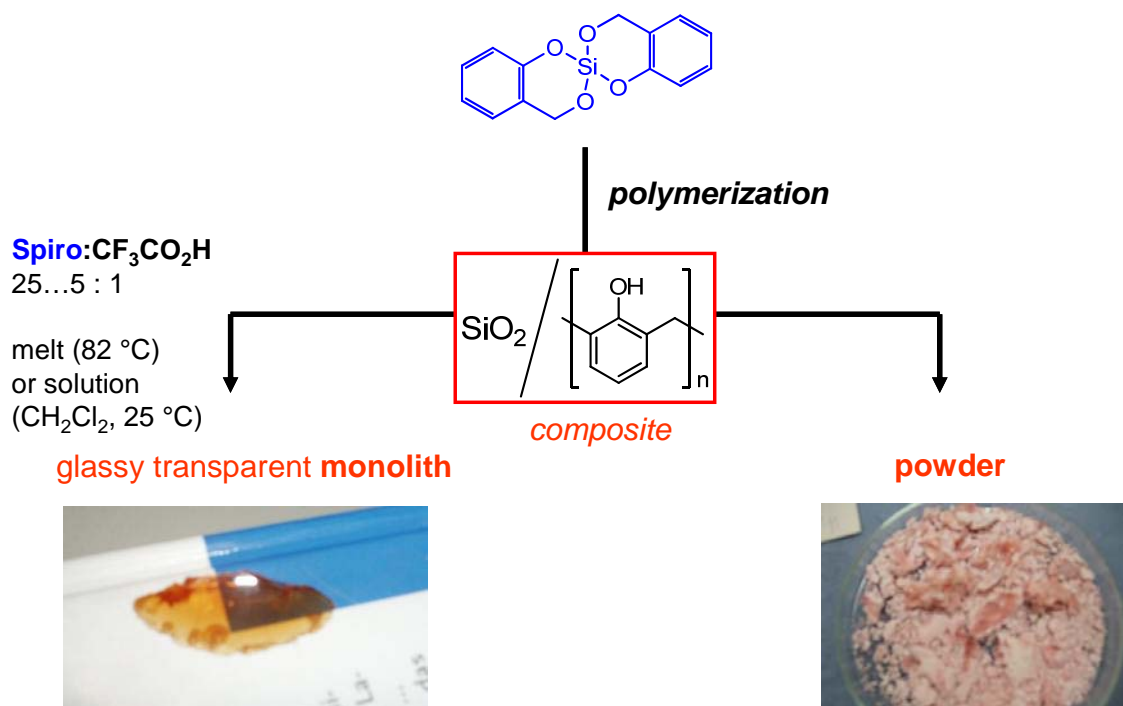


Twin-Polymerisation – a New Concept in Macromolecular Chemistry?

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Twin-polymerisation is a new step-growth or ring-opening polymerisation type. It is characterized by the feature that one single source monomer yields two different homopolymers in only one polymerisation process. The classification of this novel type of polymerisation is explained in comparison to known processes such as simultaneous and consecutive polymerisation, respectively. The cationic twin-polymerisation of tetrafurfuryloxysilane (TFOS), difurfuryldimethylsilane, (μ 4-oxido)-hexakis(μ -furfuryloxo)-octakis(furfuryloxo)-tetra-titanium, and 2,2'-spirobi [4H-1,3,2-benzodioxasiline] is presented. For example, salicylalcohol has been used to construct the novel type of silicon monomer, the chiral compound 2,2'-spirobi [4H-1,3,2-benzodioxasiline] (**1**). The basic synthetic procedure and exemplified presentation of products using **1** is shown in the following scheme.



The cationic polymerisation of the racemic 2,2'-spirobi [4H-1,3,2-benzodioxasiline] (**1**) can be carried out in solution or in the melt, because the melting point of **1** is 82 °C (355 K).

References: S. Grund, P. Kempe, G. Baumann, A. Seifert, S. Spange, *Angew. Chem.* **2007**, *119*(4), 636-640; A. Mehner, T. Ruffer, H. Lang, A. Pohlers, W. Hoyer, S. Spange *Adv. Mater.*, **2008**, *20*, 4113-411, S. Spange, S. Grund, *Adv. Mat. (Research News)* **2008**, accepted.