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Photoinitiating efficiency of visible light initiators based on tetraacyl derivatives of germanium and tin

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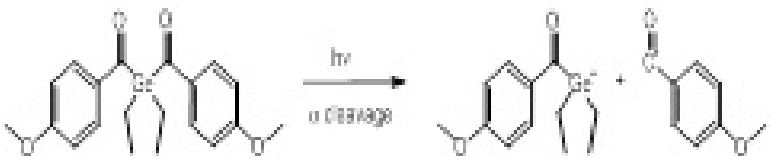
For several years, bisacylgermanium derivatives have been known to be very potent monomolecular initiators for photo polymerization induced by visible light (VL).[1] In particular, bis-(4-methoxybenzoyl) diethylgermane (Ivocerin®) exhibits an outstanding performance as amine-free Norrish type I photoinitiator (PI) for polymerization of dimethacrylate resins in dental materials and dimethacrylate-based composites, initialized by blue LED curing lights. Ivocerin® is characterized by strong absorption in the blue region of the VL spectrum, good solubility in and high PI reactivity towards dimethacrylate resins, good storage stability and excellent bleaching behavior. Recently, a very efficient synthetic method was developed, which allows the preparation of tetraacylgermanium derivatives according to a facile procedure in good yields. Based on the same synthetic procedure, the tin analogue tetrakis (2, 4, 6-trimethylbenzoyl) stannane is accessible, which displays a significant VL absorption beyond 500 nm.



Biography

Urs K Fischer has his expertise in evaluation in research and development in the field of dental materials. His main topics are material characterization of new monomers, photoinitiators, and composites for dental applications.

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