

研究快报

多元 α -巯基丙酸酯/乙烯基硅氮烷紫外光固化与热解特性

宋家乐, 陈立新, 王亚洲, 王汝敏

西北工业大学理学院, 空间物理与化学教育部重点实验室, 西安 710072

收稿日期 2007-4-25 修回日期 网络版发布日期 2007-10-24 接受日期

摘要 采用三种多官能巯基丙酸酯与含有乙烯基的硅氮烷预聚物组成光固化体系, 对其UV光固化特性和固化物热解行为进行了研究, 并制备出近似 Si_3N_4 化学组成的Si-N陶瓷材料, 为制备微型陶瓷结构件和陶瓷涂层提供了一条途径.

关键词 [聚合物陶瓷先驱体](#) [巯基-乙烯基](#) [硅氮烷](#) [紫外光固化](#) [热分解](#)

分类号 [0631](#)

UV Cure for Multi Thiol-Vinyl Silizane and Pyrolysis

SONG Jia-Le, CHEN Li-Xin*, WANG Ya-Zhou, WANG Ru-Min

Key Laboratory of Applied Physics and Chemistry in Space of Ministry of Education, School of Science, Northwestern Polytechnical University, Xi'an 710072, China

Abstract Si_3N_4 ceramic was prepared with pyrolyzing ceramic precursor of UV cured multi thiol-vinyl silizane. The results of *in-suit* FTIR show that thiol-vinyl silizane curing system was polymerized rapidly with a little photoinitiator. The photopolymerization rate was promoted, but the final vinyl bond conversion was depressed with enhancing the functionality of thiol group. The results of DMA and TGA show that T_g of the copolymer films of thiol-vinyl silizane cured by UV was elevated, however, the maximum rate of mass loss was decreased with increasing the functionality of thiol group. The ceramic yield was determined by the composition of copolymer and was independent of the thiol functionality. A majority of Si_3N_4 microcrystalline was obtained after pyrolyzing at 1400 °C for 15 h in N_2 atmosphere.

Key words [Polymer ceramic precursor](#) [Thiol-vinyl](#) [Silizane](#) [UV curing](#) [Pyrolysis](#)

DOI:

通讯作者 陈立新 lixin@nwpu.edu.cn

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