



Optica Applicata 2005(Vol.35), No.4, pp. 901-906

Thermal decomposition of silica-methyltrimethoxysilane hybrid glasses studied by mass spectrometry

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Keywords

hybrids, decomposition, methyltrimethoxysilane, mass spectrometry

Abstract

Organically modified silicates (hybrid glasses) have attracted much attention in recent years because they are considered to be promising materials with easy tailorable new properties. The structure of hybrid glass is a silica network with incorporated organic particles or chains. A sol-gel process is a convenient method for preparing bulk glasses, as well as films and layers. The main advantage of the sol-gel technique is high homogeneity and purity of synthesised material. The sol-gel is the only method giving possibility to introduce organic molecules into the inorganic network on the molecular level. Incorporated organic molecules influence mechanical, optical and thermal properties of the silica network. Series of glasses with different amount of methyltrimethoxysilane have been prepared and characterised. Thermal decomposition of methyl modified silica hybrid glasses have been studied by DTA, FTIR and mass spectrometry.



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