

Title: A New and Efficient Method for the Synthesis of Spiroorthocarbonates

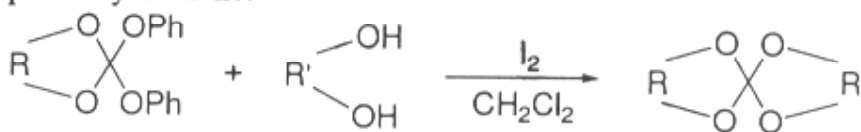
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Spiroorthocarbonates (SOCs) and related compounds have received a great deal of attention as monomers since on polymerization undergo minimal shrinkage.[1-2] These monomers are highly desirable in the field of materials such as dental fillings, high strength composites, precision castings and adhesives [3].

The synthetic routes to SOCs are not varied and mainly consist of organotin compounds. Sakai and his co-workers reported a novel multi-step synthesis of SOCs from organotin derivatives and carbonyl disulfide, while a group of other workers prepared SOCs by utilizing tetraalkylorthocarbonates and diols in the presence of *p*-toluenesulfonic acid as an acid catalyst. Other approaches mainly involve cyclocondensation of diols with thiophosgene or with dichlorodiphenoxymethane.



Scheme 1

In this study, we have introduced a new and efficient method for the synthesis of SOCs under mild and neutral conditions. The synthesis was performed by the reaction of various synthesized 1,3-dioxane with different diols in the presence of iodine as Lewis acid catalyst, giving the symmetrical and unsymmetrical SOCs as it was shown in Scheme 1. High yield, mild reaction conditions, not using protic catalyst are the superiorities of this method.

References:

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3. Rokicki, G., *Prog. Polym. Sci.*, **25**, 259 (2000).