

FOUR MEMBERED CYCLIC SULFONES FROM BENZYL SULFONYL  
FLUORIDE, KETENE DIETHYLACETAL AND PHENYL LITHIUM

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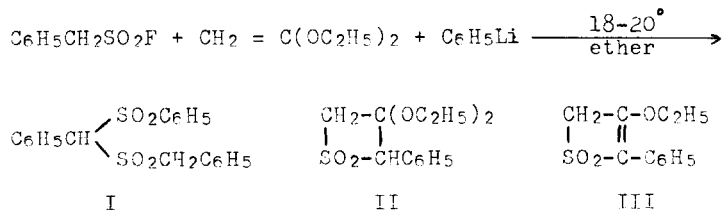
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It has recently been reported that benzylsulfonyl chloride reacts with triethylamine to give trans-stilbene<sup>1</sup> and in the presence of ketene diethylacetal to form an interesting four membered cyclic sulfone, 2-phenyl-3,3-diethoxythietane 1,1-dioxide.<sup>2</sup> These reactions have been formulated as involving the intermediacy of phenylsulfene,  $C_6H_5CH=SO_2$ . Benzylsulfonyl fluoride, however, does not react with triethylamine under a comparable reaction condition.<sup>3</sup>

We now wish to report on the formation of four membered cyclic sulfones from benzylsulfonyl fluoride, ketene diethylacetal and phenyllithium. The formation of four membered cyclic sulfones from a sulfonyl fluoride appears to be the first observation.

The reaction was carried out by adding phenyllithium to a stirred solution of benzylsulfonyl fluoride and ketene diethylacetal dissolved in anhydrous ether at 18-20° under argon atmosphere.  $\alpha$ -Benzylsulfonyl- $\alpha$ -benzenesulfonyl toluene (I), 2-phenyl-3,3-diethoxythietane 1,1-dioxide (II) and 2-phenyl-3-ethoxythietane 1,1-dioxide (III) were obtained as products in 30.0%, 9.3% and 7.4% yields respectively.





in the interaction of benzylsulfonyl fluoride with phenyllithium. In addition, the present result presents a further information than described in the previous paper<sup>4</sup> on the mechanism for the formation of I, which will be reported in a later paper.

#### References

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