

Pyrolysis of Alkyl Sulphoxides

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A RECENT publication¹ discussing the possible value of the pyrolysis of sulphoxides as a synthetic method for the preparation of olefins prompts us to record some of our results. In our work we

wished to prepare a series of vinyl compounds $\text{CH}_3 \cdot [\text{CH}_2]_n \cdot \text{CH}=\text{CH}_2$ (I; where n is even). The homologues where n is odd are readily obtained from the corresponding alcohols by dehydration.

¹ C. Walling and L. Bollyky, *J. Org. Chem.*, 1964, **29**, 2699.

Treatment of the anion of dimethyl sulphoxide² with a normal primary bromide, $\text{CH}_3 \cdot [\text{CH}_2]_n \cdot \text{CH}_2\text{Br}$, for 3 hours at room temperature gave good yields of the sulphoxide, $\text{CH}_3 \cdot [\text{CH}_2]_n \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{SO} \cdot \text{CH}_3$ (II), usually crystalline. Pyrolysis of the sulphoxide (II) to the vinyl olefin (I) was conveniently carried out by refluxing in dimethyl sulphoxide. For example, the sulphoxide (II; $n = 10$), m.p. 59–60° (petroleum), was obtained in 73% yield. Refluxing this sulphoxide for 30 minutes in dimethyl sulphoxide afforded tridec-1-ene (80%).

In a variation of this procedure an alcohol, $\text{R} \cdot \text{CH}_2 \cdot \text{OH}$ ($\text{R} = n\text{-C}_{15}\text{H}_{31}$), was converted by toluene-*p*-sulphonyl chloride in pyridine at 0°C for 2 hours into its toluene-*p*-sulphonate, m.p. 44° (ethanol). This sulphonate was added to dimethyl sulphoxide anion ("dimesylsodium") at room temperature and set aside for 2 hours to give the sulphoxide (II; $n = 14$), m.p. 73–74° (petroleum), in 85% yield. Refluxing in dimethyl sulphoxide gave heptadec-1-ene.

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² E. J. Corey and H. Chaykovsky, *J. Amer. Chem. Soc.*, 1962, **84**, 866.