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Supporting Information for

Deoxygenation of Sulphoxides to Sulphides with Trichlorophosphane

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¹H and ¹³C NMR spectra of *Allyl(p-tolyl)sulfane(3d)* in CDCl₃











¹H and ¹³C NMR spectra of *1-benzyl-2-(benzylthio)-1H-benzo[d]imidazole(3g)* in CDCl₃









¹H and ¹³C NMR spectra of *N*,*N*-diethyl-2-(p-tolylthio)acetamide (3j) in CDCl₃

¹H, ¹³C and ¹⁹F NMR spectra of *1-methyl-3-((trifluoromethyl)thio)-1H-indole(3k)* in CDCl₃







¹H, ¹³C and ¹⁹F NMR spectra of *3-((difluoromethyl)thio)-1H-indole(3l)* in CDCl₃



¹H and ¹³C NMR spectra of *Diphenylsulfane(3m)* in CDCl₃

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10	9	8	7	6	5	4	3	2	1	0 ppm



¹H and ¹³C NMR spectra of *Bis(4-nitrophenyl)sulfane(3n)* in d₆-DMSO





¹H and ¹³C NMR spectra of *Bis(4-methoxyphenyl)sulfane(30)* in CDCl₃



¹H and ¹³C NMR spectra of *Bis(2,6-dimethylphenyl)sulfane(3p)* in CDCl₃



¹H and ¹³C NMR spectra of *4,4'-thiodiphenol (3q)* in d₆-DMSO



¹H and ¹³C NMR spectra of *9H-thioxanthen-9-one(3r)* in CDCl₃



¹H and ¹³C NMR spectra of *Thiobis(4,1-phenylene) diacetate (3s)* in CDCl₃







¹H and ¹³C NMR spectra of *Dibenzylsulfane(3u)* in CDCl₃



¹H and ¹³C NMR spectra of *DibutyIsulfane(3v)* in CDCl₃



Procedure for the additional reaction to support the mechanism

Add **1a** (98 mg, 0.5 mmol) to dry CH_3CN (2 mL) in a flame-dried Schlenk tube. Then the trichlorophosphane (72 mg, 0.525 mmol) was added into the solvent by syringe at 25 °C. The mixture was stirred at indicated temperature for 0.5 hour. Then, the reaction was quenched with pyrrolidine (710 mg, 10 mmol) and stirred at 25 °C for 1 hour. The solvent was evaporated under reduced pressure and the residue was analysed by GC-MS.







