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An Unusual Ketone Promoted Hydration Reaction in the Conversion of a Phosphole to a 2-Phosfolene Oxide

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Treatment of 1,2,5-triphenylphosphole (1) with dry hydrogen bromide in refluxing benzene in the presence of 5H-dibenzo[a,d]cyclohepten-5-one (2) leads quantitatively to 1,2,5-triphenyl-2-phosfolene oxide (3) after aqueous work-up. Only one diastereomer is produced.

Two intermediates have been isolated, one stable to the atmosphere at room temperature and the other moisture sensitive. The structures of these intermediates and possible mechanisms for this unusual reaction are discussed.

