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Direct Resolution of Secondary *Tert*-Butylphenylphosphine Oxide

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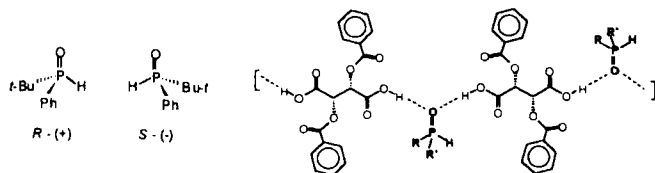
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Direct Resolution of Secondary *Tert*-Butylphenylphosphine Oxide

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Secondary phosphine oxides constitute an important class of organophosphorus compounds and are highly useful as versatile phosphinoylating agents and as ligands [1,2]. They are however not readily available in the optically active form [3-5]. We wish to demonstrate that P-chiral secondary *tert*-butylphenylphosphine oxide (**1**) can be promptly resolved into enantiomers by means of its diastereoisomeric complexes with *L*-(+)-dibenzoyltartaric acid (*L*-DBTA). Dissolution of equimolar amounts of racemic **1** and *L*-DBTA in the 4:1 benzene/acetone mixture yields crystalline 1:1 complex containing exclusively the *R*-enantiomer of the starting phosphine oxide. The complexed *S*-enantiomer is obtained from the mother liquor by crystallization from benzene. The enantiomers of **1** are freed from their *L*-DBTA complexes by simple washing with aqueous NaOH. Both enantiomers of **1** of very high optical purity are thus obtained from a single batch. These enantiomers have subsequently been tested for their configurational stability in selected synthetic applications.



The two diastereoisomeric 1:1 complexes have been studied by a single-crystal X-ray diffraction method and their secondary structure is visualized above. It follows from this study that P-H hydrogens are not involved in the association process.

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