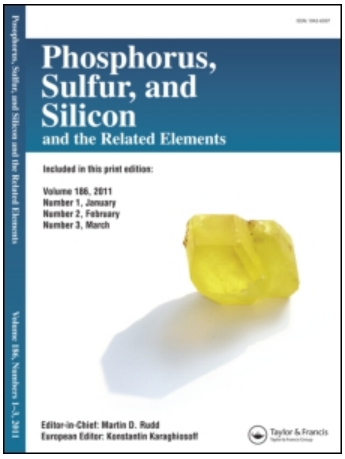

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Direct Resolution of Secondary *Tert*-Butylphenylphosphine Oxide

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Direct Resolution of Secondary *Tert*-Butylphenylphosphine Oxide

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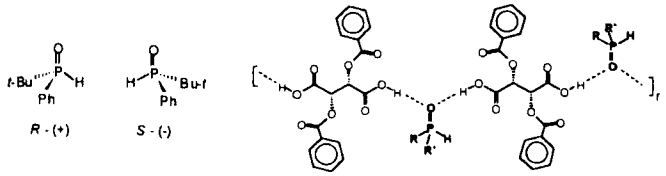
Secondary phosphine oxides constitute an important class of organophosphorus compounds and are higly useful as versatile phosphinoylating agents and as ligands [1,2] They are however not readily available in the optically active form.[3-5] We wish to demonstrate that P-chiral secondary *tert*-butylphenylphosphine 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 form this study that P-H hydrogens are not involved in the association process.

References

[1] R.Engel, *Synthesis of Carbon-Phosphorus Bonds* (CRC Press, Inc.: Boca Raton FL, 1988).
[2] A.W. Parkins, *Platinum Metals Rev.*, **40,** 4, 169 (1996).
[3] T.L. Emmick, R.L. Letsinger, *J. Am. Chem. Soc.*, **90,** 3459 (1968).
[4] J. Michalski, Z. Skrzypczynski, *J. Org. Chem.*, **97** (1975).
[5] R. Freeman, R.K. Haynes, W.A. Loughlin, C. Mitchell, J.V. Stockes, *Pure & Appl. Chem* **65,** 647 (1993).