Chapter

Role of *tert*-Butyl Hydroperoxide (TBHP) in Cross-Coupling Reactions

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Abstract

tert-Butyl hydroperoxide (tBuOOH, TBHP) is a common hydroperoxide used in a variety of oxidation processes. The primary reasons for TBHP's increased usability are its low cost, environmental friendliness, high efficiency, and capacity to replace dangerous or scarce heavy metal oxidants. In this book chapter, we have reviewed and briefed up representative applications of TBHP in cross-coupling reactions from 2014 to the present.

Keywords: TBHP, oxidation, organic synthesis, catalysis, heterocyclic ring formation, C−H functionalization and hetero−hetero bond formations, cross-coupling

1. Introduction

tert-Butyl hydroperoxide (*t*BuOOH) is an organic molecule with the formula $(CH_3)_3COOH$ (**Figure 1**). The transparent, colorless liquid is generally accessible as 70–90% aqueous solutions or anhydrous in hydrocarbon solvents. It is one of the most commonly used hydroperoxides in a range of oxidation reactions [1]. *tert*-Butyl hydroperoxide, unlike hydrogen peroxide and organic peracids, is less reactive and more soluble in organic solvents [2].

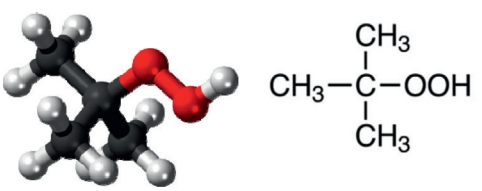

Figure 1.
tert-*Butyl hydroperoxide (TBHP).*