

## [TPPFe(III)]~2O的合成及其对细胞色素P-450的模拟

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**摘要** TPPFe(III)Cl通过中性Al~2O~3色谱柱得到一个新化合物,它在HPLC中的保留时间比TPPFe(III)Cl大得多,IR、UV-Vis和元素分析表明,这个新化合物是[TPPFe(III)]~2O. 同TPPFe(III)Cl一样,它具有在常温常压下催化碳氢化合物单氧化的性质。[TPPFe(III)]~2O催化下PhIO氧化环己烷的反应,在CH~2Cl~2和环己烷介质中,氧化产率分别为14.97和62.6%,高于TPPFe(III)Cl作催化剂时的产率。在环己烷溶剂中,反应产率与反应时间呈线性关系,且反应有大约3小时诱导期。但在CH~2Cl~2溶剂中不存在反应产物与时间的线性关系,也不存在诱导期。与TPPFe(III)Cl比较,[TPPFe(III)]~2O对氧化剂更稳定。上述事实表明,[TPPFe(III)]~2O能够作为细胞色素P-450的模型化合物。

**关键词** [卟吩 P](#) [催化剂](#) [氧化铝](#) [铁络合物](#) [色谱柱](#) [模拟物](#) [细胞色素](#) [模型化合物](#)

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## Synthesis of [TPPFe(III)]~2O and imitation on cytochrome P-450 mono-oxygenase

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**Abstract** m-Oxobis[tetraphenylporphinatoiron(III)], [TPPFe(III)]2O, was synthesized by passing TPPFe(III)Cl through a neutral Al2O3 chromatog. column, and was characterized by HPLC, IR, and UV visible spectroscopies and elemental anal. Just as TPPFe(III)Cl, it has the properties of catalyzing the oxidation reaction of cyclohexane with PhIO under room temperature and atmosphere. In the oxidation reaction of cyclohexane, the yields of the oxidation products in CH2Cl2 and cyclohexane medium were 14.97% and 62.6%, resp. In cyclohexane solvent, the quantities of products linearly correlated with the reaction time, and the induction period was ~3 h, but both this linear correlation and induction period were absent in CH2Cl2. Compared with TPPFe(III)Cl, [TPPFe(III)]2O was more stable because it was less easily oxidized by oxidants. The above facts showed that [TPPFe(III)]2O could be used as a model of cytochrome P 450 monooxygenase.

**Key words** [PORPHINE P](#) [CATALYST](#) [ALUMINIUM OXIDE](#) [IRON COMPLEX](#) [CHROMATOGRAPHIC COLUMN](#) [ANALOGITS](#) [CYTOCHROME](#) [MODEL COMPOUND](#)

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