

**[[K·TPPO·DB-1-8C-6]~2(C-4H-8O~2)](HgI~3)~2}·3C~4H~8O~2**单晶的合成、性质和结构表征

蒋德华,刘学勇,孙大岩,沈静兰

山东大学化学学院

收稿日期 修回日期 网络版发布日期 接受日期

**摘要** 用二苯并-18-冠-6(DB18C6)和三苯基氧化膦(TPPO)的三氯甲烷溶液从KI介质中萃取Hg(II),先制得固体协萃配合物,在二氧六环(C~4H~8O~2)中重结晶得标题物单晶,对单晶进行了熔点测定、热重和红外光谱分析,测定了结构。晶体属P1空间群,晶胞参数a=1.4211(2), b=1.4488(4), c=1.4934(4)nm;  $\alpha=113.61(2)$ ,  $\beta=110.78(1)$ ,  $\gamma=87.29(2)^\circ$ 。晶体中每个K与一个DB18C6上的六个O和一个TPPO上的一个O配位的同时,每两个K还与一个C~4H~8O~2上的两个O配位,桥连成中心对称的二聚[[K·TPPO·DB18C6]~2(C~4H~8O~2)]<sup>2+</sup>配阳离子;每两个Hg通过两个I桥连成二聚[HgI~3]~2<sup>2-</sup>配阴离子;阴离子相间排列。另外三个C~4H~8O~2分子填充于晶格间隙中。

**关键词** [晶体结构](#) [汞络合物](#) [冠式化合物](#) [萃取](#) [二氧六环](#) [三苯基氧化膦](#)

分类号 [074](#)

**Studies on synthesis, characterization and structure of the compounds [[K·TPPO·DB-1-8C-6]~2(C-4H-8O~2)](HgI~3)~2}·3C~4H~8O~2**

JIANG DEHUA, LIU XUEYONG, SUN DAYAN, SHEN JINGLAN

**Abstract** The crystals of the title compounds were synthesized by solvent extraction of Hg(II) with DB18C6 and TPPO in CHCl<sub>3</sub> solution from KI media, and recrystallization in C~4H~8O~2. They have been studied by melting point determination and TG, IR analysis, and have been structurally characterized by singlecrystal X-ray diffraction techniques. Crystals of the complexes are triclinic, space group P1 with a=1.4211(2), b=1.4488(4), c=1.4934(4)nm;  $\alpha=113.61(2)$ ,  $\beta=110.78(1)$ ,  $\gamma=87.29(2)^\circ$ . In the crystals, every K is coordinated by the six oxygen atoms of the DB18C6, one oxygen atom of the TPPO, and every two K are coordinated by two oxygen atoms of the C~4H~8O~2. Dipolymer [[K·TPPO·DB18C6]~2(C~4H~8O~2)]<sup>2+</sup> cations can be considered to be based on a centrosymmetric bridged dimetric arrangement. Every two Hg were halogen-bridged by two I to be a dipolymer (HgI~3)~2<sup>2-</sup> anions. The anions and the cations arrange in order every other. The other three C~4H~8O~2 fill in the gap of the lattices.

**Key words** [CRYSTAL STRUCTURE](#) [MERCURY COMPLEX](#) [CROWN ETHER COMPOUNDS](#) [EXTRACTION](#) [DIOXANE](#)

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(367KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“晶体结构” 的相关文章](#)

▶ [本文作者相关文章](#)

- [蒋德华](#)
- [刘学勇](#)
- [孙大岩](#)
- [沈静兰](#)