

## 齿轮传动的磨损自修复

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## Self-Repairment of Wearing in Gear Transmission

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### 摘要

研制适用于钢/钢摩擦副的含软金属Sn,Zn粉体的自修复润滑剂,在摩擦磨损试验机上考察该润滑剂的修复性能和摩擦学性能,用ANSYS软件仿真计算齿轮传动的齿面接触应力.研究表明,研制的Sn-Zn修复润滑剂可在钢表面摩擦形成修复层,在不同载荷下有良好的减摩和抗磨性能.仿真计算结果显示,该修复润滑剂可使修复齿面的接触应力降低16.7%.

关键词: [软金属添加剂](#); [自修复](#); [齿轮传动](#); [摩擦磨损](#); [接触应力](#)

### Abstract:

A type of self-repairing lubricant containing Sn and Zn powder additives and suitable for steel-steel tribo-pair is developed. Its repairing and tribological properties are reviewed on a rebuilding model MS-800 tester. The tooth contact stress of gear transmission is calculated with ANSYS. The findings showed that repairing coatings can be formed on steel surface because of the Sn-Zn self-repairing lubricant, which has good anti-friction and anti-wear properties under different loads. Simulation results indicate that tooth contact stress is reduced by 16.7% after repairing with the lubricant.

Keywords: [soft metal additive](#); [self-repairing](#); [gear transmission](#); [friction and wear](#); [contact stress](#)

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