

<<微纳米硫系固体润滑>>

图书基本信息

书名：<<微纳米硫系固体润滑>>

13位ISBN编号：9787030317858

10位ISBN编号：7030317858

出版时间：2011-11

出版时间：科学出版社

作者：Haidou Wang , Binshi Xu , Jiajun Liu 著

页数：303

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

<<微纳米硫系固体润滑>>

内容概要

Haidou Wang和Binshi

Xu等编著的《微纳米硫系固体润滑》共七章，深入系统地介绍了硫系固体润滑材料（膜层）的制备方法 & 工艺，微观表征与摩擦学性能考核，减摩机理与模型等，包含了作者的研究心得和对固体润滑材料的深入思考。

书中大部分内容都是作者所在课题组的直接研究成果，许多成果都以SCI、EI论文的形式在国内外知名期刊上发表，论文总数接近50篇。

<<微纳米硫系固体润滑>>

书籍目录

Chapter 1 Solid Lubrication Materials

1.1 Overview of Solid Lubrication

1.1.1 Introduction

1.1.2 Adhesive Wear and Scuffing of Metals and Methods of Prevention

1.1.3 Solid Lubrication

1.2 Soft Metal

1.2.1 Crystal Structure

1.2.2 Physical and Chemical Properties

1.2.3 Lubrication Mechanism

1.3 Metal Compounds

1.3.1 FeS

1.3.2 MoS₂

1.3.3 WS₂

1.3.4 ZnS

1.4 Inorganic Solid Lubricant

1.4.1 Graphite

1.4.2 BN

1.5 Organic Solid Lubricant

1.5.1 Polytetrafluoroethylene

1.5.2 Polythene

1.5.3 Nylon

1.5.4 Polyformaldehyde

1.5.5 Phenol Formaldehyde Resin

1.5.6 Epoxide Resin

1.6 Conclusion

References

Chapter 2 Solid Lubrication FeS Film Prepared by Ion Sulfuration

2.1 The Microstructure of Solid FeS

2.1.1 Surface Morphologies of Solid FeS

2.1.2 Phase Structures of Solid FeS

2.1.3 TEM Morphologies of Solid FeS

2.1.4 Analysis of Electron Diffraction

2.2 The Formation of Iron Sulfuration Layer

2.2.2 Surface Morphologies of Sulfuration Layers

2.2.3 Composition on the Sulfurized Steel Surface

2.2.4 Phase Structure of Sulfide Layer at Different Sulfurizing Time

2.2.5 Formation Mechanism of Sulfurized Layer

2.3 Characterization of Ion Sulfurized Layer

2.3.1 Characterization of Sulfurized Layer on 1045 and 52100 Steels

2.3.2 Characterization of Sulfurized Layer on Four Kinds of Steels

<<微纳米硫系固体润滑>>

- 2.4 Tribological Properties of Sulfurized Layers
 - 2.4.1 Tribological Properties of Sulfurized Layers on 1045 and 52100 Steels
 - 2.4.2 Tribological Properties of Sulfide Layer on Four Kinds of Steel
- 2.5 Influencing Factors of the Microstructures and Tribological Properties on
 - 2.5.1 Effect of the Substrate State on the Sulfide Layer on 1045 Steel
 - 2.5.2 Effect of Environment Temperature on the Sulfurized Layer on
 - 2.5.3 Effect of Wear Conditions on the Tribological Behaviors of Sulfurized
- Chapter 3 FeS Solid Lubrication Film Prepared by a Two-step Method
 - 3.1 Radio-frequency (RF) Sputtering + Sulfurizing Combined Treatment
 - 3.2 Shot-peening + Ion Sulfuration Combined Treatment
 - 3.2.3 Tribological Properties of Sulfide Layer
 - 3.3 Nitriding + Sulfurizing Combined Treatment
 - 3.3.1 1045 Steel Nitriding + Sulfurizing Combined Treatment
 - 3.3.2 Gray Cast-iron NiLriding + Sulfurizing Combined Treatment
 - 3.4 Nitrocarburizing + Sulfurizing Combined Treatment
 - 3.5 Thermal Spraying 3Cr13 Steel Coating + Sulfurizing Combined
 - 3.5.2 High-velocity Arc Spraying
 -
- Chapter 4 FeS Solid Lubrication Layer Prepared by Other Methods
- Chapter 5 Micron-nano MoS₂ Solid Lubrication Film
- Chapter 6 Micron-nano WS₂ Solid Lubrication Film
- Chapter 7 Micron-nano ZnS Solid Lubrication Film
- Index

章节摘录

When two surfaces come into contact , load is actually borne by many asperities; the real contact area of rough surfaces is usually far less than the nominal contact area. Therefore , the local high stress is easily generated at the asperity peaks. When the surfaces are sliding with each other , the local melting caused by friction heat will lead to the adhering or welding between asperities , which can induce the macro adhesion and scuffing , or even seizure of friction surfaces. Adhesive wear is a common wear mode of the friction-pair in machinery equipment. Due to high surface energy and large chemical activity , clean metal surfaces are prone to adhesion , thus the friction coefficient is large , and the wear is severe. Under oil lubrication condition , adhesion can occur if the oil film is damaged; otherwise , the friction coefficient and wear can maintain a relatively low level. According to the degree of adhesion , adhesive wear can be divided into four categories. When soft metal material transfers to hard metal surface , and the transfer film is very thin , it is known as smearing. When shearing occurs within the subsurface layer of soft metal , and hard surface is also scratched , it is known as scratching. When shearing occurs in the deep layer of substrate metal , it is known as scuffing. Cold welding caused by plastic deformation and molecular absorption is known as the first type of scuffing , while hot welding caused by the rise of surface temperature is known as the second type of scuffing. When external force can not overcome the bonding strength of interface , the relative movement is forced to be stopped , which is known as seizure.

<<微纳米硫系固体润滑>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>