

Material Technology

Title

A Lubricating Oil Which Is Based On Vegetable Oil And Can Form Tribofilms During Use

Abstract

This invention is a vegetable oil-based mixture with the effect of a self-forming lubricating film. Under the conditions of an appropriate temperature (for example, 100 degrees Celsius) higher than room temperature and pressure (for example, 100 MPa) higher than normal pressure, It can self-form a grinding film on the metal surface to provide a lubricating effect. The mechanism is that initially, a predetermined oil ester compound is formed by free radical polymerization, and then a carbon network structure is formed on the metal surface. After the oil is used up, the carbon network structure will form a nanocrystalline graphite layer. The nanocrystalline graphite layer is then used as a grinding film.

Benefits

Existing plant-based lubricating oils, such as vegetable oils such as palm oil, are triglycerides (TAG) which can be used as lubricating oils, but due to their chemical instability, they tend to fail at low loads. The mixture of this invention is mainly based on vegetable oil with the addition of environmental protection additives, it is made to be environmentally friendly. Compared with traditional mineral oil, it solves the traditional mineral oil environmental issues, but also has effects of very good resistance to high temperature and high pressure and can still maintain a good lubricating effect under high temperature and high pressure.

Industry Categories

Machine Tool Manufacturing

Keywords

palm oil, abrasive film, vegetable oil

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