

二硫化モリブデンに代わる新規白色潤滑材料の開発

The Development of New White Lubricant Material Replaced with Molybdenum Disulfide

大竹 正人

Masato OTAKE

抄 録

冷間鍛造用の潤滑処理は従来のりん酸塩 / 石けん処理から一工程型潤滑剤に代替が進んでいる。歯型成形などの強加工向け潤滑剤には二硫化モリブデンが用いられるが、黒色であることから作業環境の著しい汚染が問題視されており、特に白色の潤滑剤が強く望まれている。我々は新規の固体潤滑材料として鎖状有機分子を修飾した層状無機化合物を開発した。

この白色固体潤滑材料は二硫化モリブデンと同等以上の耐焼付き性、滑り性を有する。これをベースとする白色潤滑剤は強加工に適用できるだけでなく、潤滑被膜カスの堆積性や分散安定性でも優れた特徴を持つ。

Abstract

Much progress has been made in the replacement of the phosphating and soap coating process with dry-in-place type lubricants in cold forging. Molybdenum disulfide exhibits good frictional properties as a solid lubricant material and is useful for difficult cold metal working such as forming gear teeth. However, since molybdenum disulfide is a black material, there is the drawback of severe pollution of the working environment. Therefore, there is a strong demand for white lubricant for difficult metal working. We have developed a new solid lubricant raw material which modified the chain-like organic component in the layered inorganic compound. This new material has outstanding anti-seizure performance and superior lubricating ability compared with molybdenum disulfide.

The new white lubricant can be applied on difficult metal working. The newly developed lubricant can reduce the amount of deposition of lubricant coating as compared with the conventional type. In addition, it shows excellent dispersion stability exceeding that of molybdenum disulfide.