トライボロジー分野へのりん酸マンガン処理の適用

Manganese Phosphate Treatment for Tribology Applications

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りん酸塩処理技術の歴史は古く、当グループも 1928 年の創業以来、長きに渡りその技術の発展に取り組んできた。その結果、りん酸塩処理は得られる様々な種類のりん酸塩皮膜の特性を活かして、塗装下地、塑性加工潤滑下地、および耐摩耗性付与等を目的に、様々な工業用途に利用されるようになった。

本報では、特に耐摩耗性および金属の凝着防止のために用いられるりん酸マンガン処理に着目し、その皮膜析出機構から、得られる皮膜のバリエーション、さらには耐摩耗性発現のメカニズムを解説する。また、りん酸マンガンの各種摺動評価結果とそれらの適用事例を紹介しながら、どのような局面で、どのようなりん酸マンガン処理を用いるべきかについても言及する。

ABSTRACT

Phosphating technology has a long history. Nihon Parkerizing has been contributing to the development of phosphating technology since our company was founded in 1928.

As a result of our efforts to make the most of the characteristics of a variety of phosphating films, our technology has been widely utilized as a paint base, a base treatment for plastic forming and as a treatment for providing wear resistance.

In this report, we focus on manganese phosphate which is used to provide wear resistance and to prevent metal adhesion, and also explain several types of manganese phosphate films by showing their film formation mechanisms as well as the mechanisms by which wear resistance is provided.We also explain what type of manganese phosphate needs to be selected under different conditions by showing evaluation results for sliding property along with examples.