

冷延鋼板用新規塗装下地処理剤の開発 Development of New Pre-Treatment Coating Chemical on Cold-Rolled Steel Sheet for Use as a Paint Base

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Abstract

Cold rolled steel sheet is used in a wide range of applications such as automobiles, electric appliances and household appliances, that are surface treated and painted to give them corrosion resistance and designability. A general painting process is that the steel coil or its sheet with rust prevent oiling is transferred to a paint plant where it is press-formed and assembled. The surface of the assembled parts is treated with chemical degreasing and chemical conversion coating, and finally the surface treated parts are painted. Zinc phosphating is the most common conversion coating applied, however the process generates a large amount of waste from chemical sludge and waste water. According to the Sustainable Development Goals (SDGs) adopted in 2015 as an international goal, industrial companies should pursue goal 12 “Responsible Consumption and Production” through technical innovation that enables the further reduction of industrial waste, CO₂ and waste water. Therefore, we have developed a new pre-treatment chemical for use as a paint base. The new technology is applied at the final stage in the cold rolled steel manufacturing plant instead of conventional rust prevention oil. By using this newly developed chemical, we can reduce industrial waste, CO₂ and waste water in paint plants because it makes it possible to skip the chemical degreasing and chemical conversion stages. In addition, the new developed chemical is capable of preventing the corrosion of steel during transfer from steel manufacture to paint plant. In this paper, we report on the investigation of film performances of the newly developed pre-treatment chemical for use a paint base.

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