# Study on Influence of Micro-sturcture on Phosphating Performance of Acid Pickled Steel

**Cai Ning**, Hao Yulin, Yao Shicong, Long Yuan, Ji Ying

*Shougang Group Research Institute of Technology, 69# Yangzhuang Street, Shijingshan District, Beijing, 100043, China*

**Abstract** Hot-rolled acid pickled steel plates are gradually replacing some cold-rolled plates in the field of automotive parts due to their excellent surface quality and low price advantages. Phosphating process is still the main pre-treatment process for automotive parts coating, and its performance has a significant impact on the corrosion property of the electrophoretic painted parts. Therefore, the study of phosphating performance of acid pickled steel plates is gradually receiving more and more attentions. This article uses hot-rolled acid picked plates of different strength levels (270MPa, 420MPa, 590MPa, 780MPa) as experimental materials to systematically analyze the influence of microstructure on phosphating performance. The results show that coarse ferrite grains are not conducive to obtaining small and uniform phosphating grains, and the coverage of phosphating film is prone to insufficient coverage. Micro-structure with multi-phase and fine grains is beneficial for improving phosphating performance.

**Keywords** Hot-rolled acid pickled steel, Phosphating performance, Micro-structure, Pre-treatment process,