

Effect of Particle Dispersion State on Properties of Sprayed Coating for Suspension Spraying

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Abstract

Suspension spraying is a promising surface modifying technology because finer particles can be used compared to conventional thermal spraying. However, the optimal conditions for preparing the suspension have not been established yet. Thus, the effects of the particle dispersion and flocculation state in suspensions on the properties of coatings fabricated by suspension spraying were discussed in this paper. Y_2O_3 suspensions were prepared by changing the additive amount of dispersant and the flow curve and gravitational settling behavior of the prepared suspensions were investigated. The adsorbed amount of dispersant on the particles was also determined. In addition the Y_2O_3 coatings were fabricated by suspension spraying and the properties of obtained coatings were investigated. It was found that the addition of dispersant had effect on the suspension flow characteristic as the adsorbed amount of dispersant increased with an increase in the additive amount. It was also shown that the coating characteristics improved as the suspension apparent viscosity got smaller.

Keywords

Suspension; Suspension Spraying; Dispersion; Y_2O_3