

Adhesion Increase Method for Shinkansen Vehicles under Snowfall in Winter

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When railway vehicles running in snowy weather, the adhesive force between rails and wheels is lower than that in rainy weather. For this reason, we studied a method to increase the adhesion coefficient focusing on the temperature and the roughness of wheel treads. From the viewpoint of minimizing specification changes, improving the material of current adhesive blocks through full-scale dynamo bench testing, we developed new adhesive blocks. An optimal wheel tread cleaner operation pattern was found through running tests using an actual vehicle in winter. The execution of the pattern contributes to improving adhesive effect such as increasing roughness of wheel treads, and suppressing sliding in the high-speed range, in addition to reducing temperature rise and improving wear resistance.