

## Evolution of the Skid-Resistance of Road Surfaces Based on Snow Removal Operations

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**Abstract :** As every French road operator, Autoroutes et Tunnel du Mont Blanc (ATMB) conducts annual inspections of its infrastructures. Significant loss of skid resistance has been observed on some sections of his network, sometimes on recent pavements. In the way of making the mechanisms and factors that can lead to this loss of grip more understandable, ATMB has launched a study aimed at identifying the causes and developing solutions to prevent this phenomenon. To quantify the deterioration of different road surfaces subjected to controlled scraping with steel blades of snow removal machines, a field campaign was conducted. These operations are carried out during the winter period according to a strict protocol. In order to correct the skid-resistance values, a control panel is set up. In this way, only the effect of the scraping is taken into account. It allows us to exclude the influence of the environment (temperature, humidity, etc.) and of the surface state on the skid resistance values measured during the different sessions. Skid measurements after eight years of scraping cycles showed a 7% to 13% decrease in microtexture and a 2% to 12% decrease in macrotexture adhesion. These reductions are attributed to the phenomenon of polishing road surfaces by using steel blades. Also, regeneration phenomena occur after a certain number of blades pass. Differences in steel scraper blade resistance appear related to the intrinsic properties of the aggregate used in the pavement formulation and its type. Finally, the results of this campaign will allow the determination of the resistance characteristics of the pavement damage by the steel blade of snow plows. An evolution law of the surface condition as a function of the scraping operations will also be developed from this study.

**Keywords :** pavement, skid, surface, snow plow

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