ADHESION AND LEAVES: WET ABRASIVE BLASTING TESTS ON SOUTHERN REGION 1974

Previous tests have shown that films formed from fallen leaves deposited on the running surfaces of rails can cause some of the lowest levels of wheel/rail adhesion ever recorded, particularly with a damp railhead. In service the main effects are damage to wheels and rails, and delays cause by slipping. They are most obvious in areas of the Southern Region with a combination of heavy lineside foliage and short inter-station distances.

Efforts have been made to 'blast' the leaf film from the rails using high pressure water jets. Previous tests concluded that at the water pressure and delivery rate achieved, water alone was not effective in removing leaf film at practical train speeds, although monitoring of wheelflats on treated suggests that some improvement in adhesion was attained.

Wire brushes in conjunction with water jets were found to be unsuccessful, and this report considers increasing the water pressure and introducing abrasive particles into the water jet. Limited results were obtained in Autumn 1974, partly because of the weather conditions. It was not possible to measure adhesion so assessment was by visual inspection, which needs to be carried out from the trackside in order to be effective. Monitoring the track in this way, possibly for one year only, would greatly enhance the efficiency of the treatment train schedule.

The most important factor is to select sites to be treated, and this is best done by visual assessment of lineside trees from a service train (not necessarily in the autumn). The sites on Southern Region were chosen both from past experience and from driver reports of wheelslip. At some of these sites it was concluded that poor adhesion was not due to leaf contamination, and it is doubtful whether spraying is useful at these locations.

No serious problems were encountered in the setting up and running of the extra equipment required for wet abrasive blasting. The use of Sandite for the abrasive feed was in general most successful, although the preparation of sufficient quantities is difficult and dry or wet sand feed methods could be explored instead.

The equipment used was still not capable of completely clearing a continuous leaf film from the railhead when operating at 10mile/h. This could be addressed by reducing speed at the worst sites, use of a rinsing gun after the sand/water gun, or use of a higher pressure system.

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