

## RAIL CORRUGATIONS – SOME METALLURGICAL CONSIDERATIONS

This report suggests a model to explain the propagation of corrugations on the rail top. Previous metallurgical examination of corrugations and calculations of the dynamic properties of the track form the basis for the proposals.

Corrugations probably double the wheel/rail contact force. The higher nitrogen in Workington rail may affect the wear or work hardening properties of the steel and so increase the possibility of forming corrugations. One remedy is to grind the rail top to a level below the corrugation troughs; however, it may be necessary to change the dynamic characteristics of the rail-sleeper-ballast system to prevent corrugations from reappearing.

The suggested process is a stick-slip mechanism of the rolling wheel on the rail top coupled with the dynamic behaviour of the rail-sleeper-ballast system.