

TRACK LUBRICATION

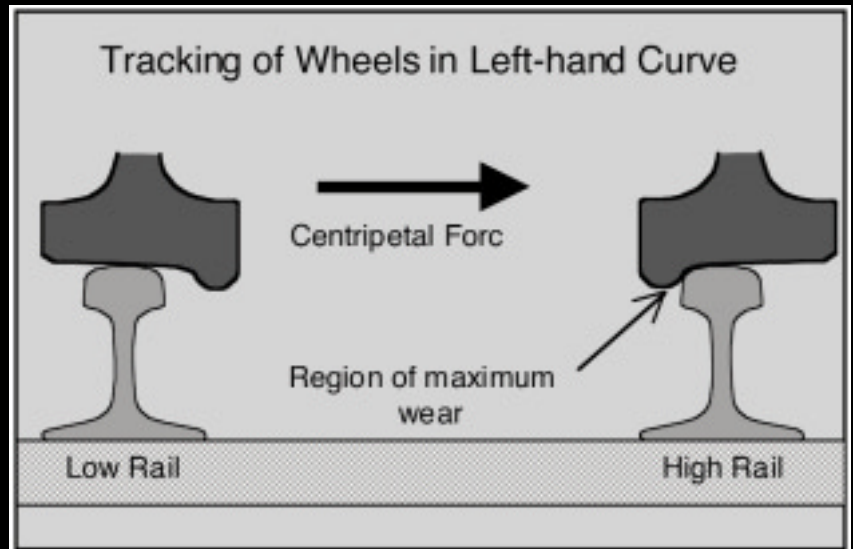
OVERVIEW

High flanging forces and sliding contact at the gauge side of the high rail in curved track cause accelerated wear of both rail and wheels. Applying lubricant to the flange/rail interface can reduce wheel and track maintenance requirements and decrease noise and fuel consumption.

Optimum lubricant type and lubrication regime depend on a range of factors including local topography, climate, number and sharpness of curves, average train length and frequency, axle loads and lubricant application method.

Lubricant can be applied to the rail using dedicated vehicles (hi-rail). Automatic applicators can also be installed in track or mounted on motive stock. Several types of oils and greases have been developed specifically for this application.

The BHP Institute of Railway Technology has developed sensitive methods for measuring the efficacy of rail-wheel lubrication, thereby allowing the process to be optimised for local conditions or even specific locations in track.



METHODS

- Tribometers are used to measure co-efficient of friction on the head of the rail.
- Acoustic Emission (AE) provides an indication of the severity of wear occurring on the rail head.
- Measurement of temperature increases in the rail caused by wheel/rail friction during train passage.

BENEFITS

- Reduced maintenance (grinding) requirements for wheels and rails.
- Reduced replacement costs for wheels and rails.
- Improved lubricant cost effectiveness resulting from optimised application rates.
- Reduced risk of loss of wheel/rail traction due to excessive lubrication.
- Significant energy savings in heavy-haul systems.
- Reduced noise (squeal) in metropolitan transit systems.

