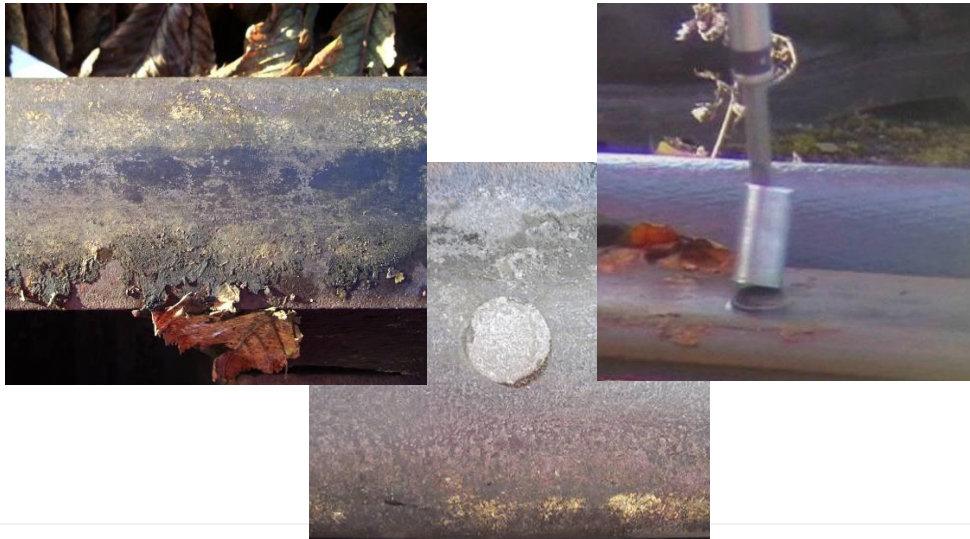


Acceleration & Braking Problems

- Contamination of the rail-wheel contact can reduce the adhesion level
- This reduces traction force available for acceleration and braking
- Poor acceleration causes difficulty in keeping to time
- Poor braking is a safety critical issue



Understanding Rail Surface Films

- Contamination is often chemically bonded to the rail surface
- Friction and bond strength measurements support investigation
- Physical and chemical approaches to controlling rail surface films are being developed