CASE STUDY
BY MERSEN

MAY 2023

SHUNT FAILURE ISSUES AT METRO LIGERO OESTE IN MADRID - SPAIN

metroligero oeste

THE ISSUE, IN SHORT

Metro Ligero Oeste in Madrid suffered several **shunt failure** issues caused by excess oil from their liquid wheel flange lubrication system.

WHAT IS SHUNT FAILURE?

Rail shunting gives information of the presence of a train on a track portion. This function is essential for safety since it is mainly used to guarantee a sufficient interval between the trains.

Shunt failure makes the train invisible to the railway signal systems and can link to collisions between trains. It can be caused by the presence of an isolation product (such as oil) between the wheels and the rails.

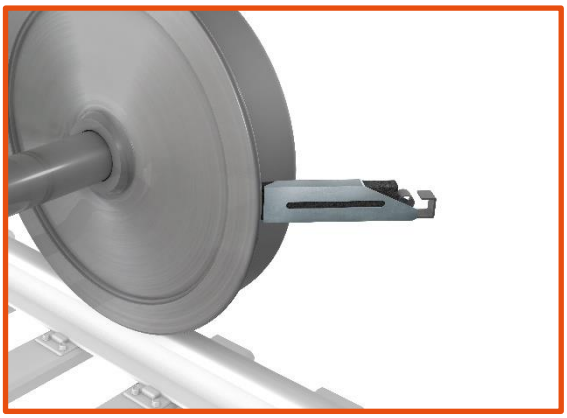
MERSEN'S SOLID WHEEL FLANGE LUBRICATION IS THE SOLUTION

Solid lubricant does not migrate into the train's mechanical elements, while liquid lubricant does as a result of its viscosity, or because of humidity.

These oil projections are a potential cause for shunt failure.

Mersen's lubricating sticks create a film of graphite on the wheel. This film is transferred to the rail and then to the other wheels through contact. When wheels and rails are in contact, the film reduces the friction coefficient.

Lubrication is self-regulated, as once the film is thick enough, the wear of the stick is decreased. Contact consumes the skin; it is restored when necessary thanks to the permanent contact of the stick on the wheel.



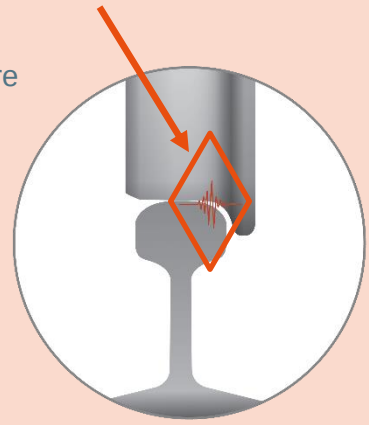
WHY IS SOLID WHEEL FLANGE LUBRICATION A BETTER SOLUTION?

Solid wheel flange lubrication main benefits on the rail / wheel contact:

RELIABILITY

Solid lubrication does not interfere with the train positioning signal while liquid lubrication does.

Wheel flange contact



NOISE

Significant reduction of noise pollution in densely populated areas.

CLEANLINESS

No formation of greasy sludge under the cars.
No need for regular wash.

FRICTION

Lower friction impacts positively on power consumption.

WEAR

Regular machining no longer needed to correct effects of rail and wheel erosion.
It reduces risks of derailment and maintenance costs.

SUCCESSFUL ACTION

No more shunt failure issues for the trains equipped with the Mersen's solid lubricant systems!

The customer already implemented the Mersen solution on 50 % of his fleet as of today, the remaining 50 % are planned to be converted shortly.

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