

## Wheel/Flange Wear Report LCF OnBoard Sticks Freight Southern US Freight System

### EXECUTIVE SUMMARY

The Kelsan Technologies Corporation was approached to evaluate the effectiveness of its RCL Rail Car Wheel Flange Lubricant Solution on the Southern US Freight System (SUSFS). The objectives were to determine the expected improvement in wheel flange life, and to determine any differences in flange wear rates between coal gondolas outfitted with four RCL brackets versus eight brackets, and between wheels with direct product application versus indirect transfer. At SUSFS request, the wear rates were also compared between the left and right sides of the train, as the system is operated unidirectional.

In this case, the Kelsan solution consists of the Kelsan RCL (Rail Car Lubricant) product applied to the wheel flange and a custom-fitted delivery system.

The results of the wheel life tests, four versus eight wheels outfitted, direct versus indirect application and wear rate by side are included in this document.

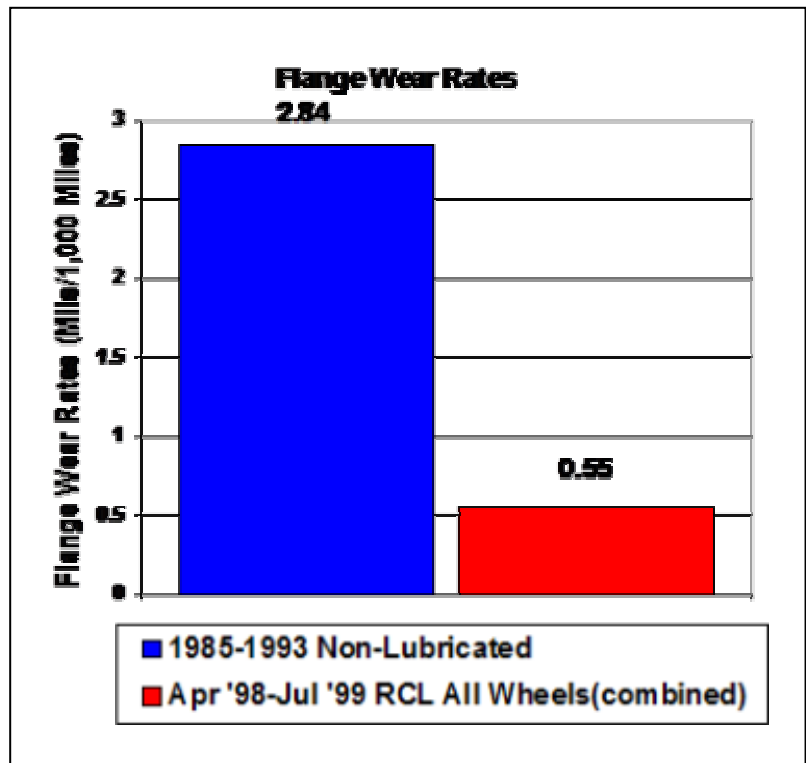
#### Summary Results:

##### Flange Wheel Wear Testing

The wheel wear performance of the Kelsan Solution on a unit coal train outfitted with Kelsan RCL was compared to previous wear rate without lubrication. The vehicles accumulated over 12,510 miles during the fifteen-month trial period.

*The RCL trial resulted in an average 516% increase in wheel flange life for the trial vehicles relative to the control vehicles.*

**Avg. Result: 5.16 X Flange Life**



**Summary Result: Segmented Comparison Testing**

- Flange wear rates for the gondolas with four wheels outfitted were 0.57 Mils/1,000 Miles.
- Flange wear rates for the gondolas with eight wheels outfitted were 0.48 Mils/1,000 Miles.
- Flange wear rates for wheels with direct application averaged 0.60 Mils/1,000 Miles, and 0.54 Mils/1,000 Miles for wheels with indirect application.
- The flange wear rates between the two sides of the train showed no significant variation.

**Conclusion**

A solution of Kelsan RCL in the solid form delivered through a car-mounted delivery system is recommended to extend wheel life and thereby decrease SUSFS's operational expenses related to wheel truing and replacement.

**Note:** To obtain a copy of the full report or find out the identity of the Southern US Freight System, please contact John Milobar, Vice President Sales & Marketing at 604-984-6100 or [jmilobar@kelsan.com](mailto:jmilobar@kelsan.com).