

FLEXIBILITY, ACCESSIBILITY, VALUE

Kelsan® Solutions ARE RICH IN FEATURES AND TECHNOLOGY THAT DELIVER POWERFUL FRICTION CONTROL SOLUTIONS

WHY KELSAN® ?

- Kelsan®, with over 100 satisfied customers, has a proven track record of providing effective and reliable solutions.
- Our products are produced under tight quality control governed by our ISO 9001:2000 certification.
- We have in-house R&D and field technicians including several PhD's and certified engineers that are constantly improving existing products and creating innovative new products.
- Kelsan's dedicated design engineering and production team use FEA analysis software to produce locomotive and customer specific delivery systems.
- Kelsan has a combined experience of over 110 years in solid stick systems.

COMPLETE FRICTION CONTROL SOLUTIONS

Kelsan Technologies is not simply a product supplier. We are dedicated to providing our customers with comprehensive cost effective friction control solutions.....sustained solutions.



Our engineers partner with customers, freight locomotive and original equipment manufacturers to identify system challenges, measure baseline data, establish mutually acceptable performance criteria, and deliver pertinent solution. Kelsan's professional technical staff provides engineering services for product installation, systems maintenance, and long-term customer care. Following installation, Kelsan offers training seminars for vehicle and track personnel, and we conduct periodic after-sales system checks to ensure that system benefits are sustained.

EXCLUSIVE TECHNOLOGY PROVIDERS

Proprietary technology is the foundation of Kelsan's success. Our research and development team is constantly adding and improving its product line in order to continue bringing leading-edge friction control solutions to our freight customers.

KELSAN CANADA
1140 WEST 15TH STREET
NORTH VANCOUVER, BC
CANADA V7P 1M9
TEL 604.984.6100

KELSAN EUROPE
UNIT 14G - WHITEBRIDGE
ESTATE
STONE, STAFFORDSHIRE
ST15 8LQ
UNITED KINGDOM
TEL +44 (178) 528.6611



WWW.KELSAN.COM

A Wholly Owned Subsidiary of
PORTEC RAIL
PRODUCTS, INC. 
www.portecrail.com

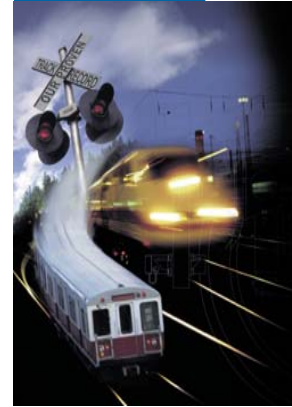
ISO 9001: 2000 CERTIFIED

For more information, please call:
1.800.653.9210 or
e-mail: info@kelsan.com

© 2005 KELSAN TECHNOLOGIES CORP. ALL RIGHTS RESERVED. KELSAN®, INNOVATIVE THINFILM FRICTION CONTROL, KELTRACK®, KELSAN SOLUTIONS, KELSAN® LCF, KELSAN® HPF, KELSAN® AUTOPILOT™ ARE TRADEMARKS AND/OR REGISTERED TRADEMARKS OF KELSAN TECHNOLOGIES CORP. ALL OTHER TRADENAMES MENTIONED ARE TRADEMARKS AND/OR REGISTERED TRADEMARKS OF THEIR RESPECTIVE OWNERS. THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. KELSAN SOLUTIONS ARE LICENSED AND/OR GUARANTEED AND ARE SUBJECT TO THE CONDITIONS AND LIMITATIONS OF THE KELSAN LICENSE AND/OR GUARANTEE.

KELSAN TECHNOLOGIES CORP.

INNOVATIVE ThinFilm FRICTION CONTROL



Kelsan® Transit/High Speed Rail Solution

OnBoard Transit/High Speed Rail Gauge Face Lubrication System

Kelsan® LCF Solid Stick Gauge Face Lubricant

A Wholly Owned Subsidiary of
PORTEC RAIL
PRODUCTS, INC. 



WWW.KELSAN.COM



Kelsan® delivers robust, integrated friction control solutions

that offer passenger rail authorities unprecedented power and flexibility in mastering operating costs. Kelsan's flagship product, Kelsan® LCF, has been specifically designed to maintain a clean environment while extending wheel/rail life and reducing operating costs. The effectiveness of this product is well-documented, supported by third-party references, and recognized globally throughout the passenger rail industry.



Kelsan® LCF OnBoard Sticks

Kelsan® LCF OnBoard Sticks are applied by vehicle-mounted brackets and spring-loaded applicators that are custom-engineered for each system. In passenger rail systems all over the world, Kelsan hardware has shown itself to be robust, durable, and reliable. Kelsan application systems are easy to implement, easy to use, and easy to maintain. Although we usually recommend on-board stick application for maximum system benefits and reliability, Kelsan® LCF is also available in liquid form for targeted curve manual application.

EXTEND WHEEL LIFE

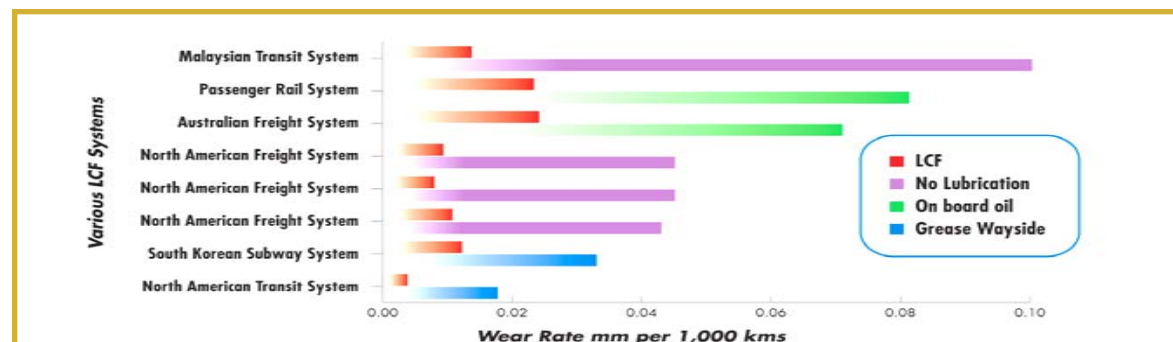
The unique properties of Kelsan® LCF, and the reliability advantages of Kelsan's on-board application system combine to deliver a highly effective wheel wear management solution. Although wheel wear rate reductions will vary from system to system, on average, transit customers can expect to dramatically extend flange life.

- Extend wheel life by reducing flange wear
- Extend wheel profiling intervals
- Consistently control lubrication system wide
- Reduce energy consumption
- Decrease the risk of low-speed derailments
- Increase vehicle availability

Testimonial: "Our biggest challenge in using LCF Sticks was reducing our commitment to wheel suppliers." (South-East Asian Transit System)



Application: Kelsan® LCF Sticks are applied by vehicle mounted brackets & spring loaded applicators which are custom engineered for each passenger rail system.



EXTEND RAIL LIFE

Minimizing friction between the wheel/rail interface significantly reduces rail wear. Kelsan® LCF applies to the wheel flange. It transfers a thin film to the rail gauge. This thin film then transfers to the following wheel flanges. In this manner Kelsan® LCF lubricates the entire wheel flange to rail interface. As a result, wheels and rails last longer.

- Proven increase in rail life
- Extend rail gauge life
- Extend switch point life
- Extend Frog Life
- Extend turnout life

ENVIRONMENTALLY SAFE

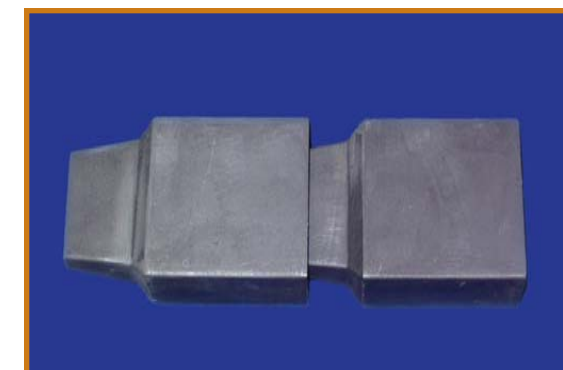
Independent testing confirms that Kelsan® LCF is safe for the environment and is much cleaner than grease and oil. The polymer characteristics are selected to ensure no migration from the flange to the top of the rail. The sticks are non-flammable and dry. They do not attract contaminants.

- Does not migrate to rail head
- Non-flammable
- No effect on traction or braking
- Cleaner depot
- Cleaner trains

ADDITIONAL PRODUCT FEATURES

- Low Capital Cost
- Ease of Maintenance
- High Reliability
- Interlocking Sticks
- ISO 9001:2000 Certified

Testimonial: "We started our relationship many years ago with LCF. Every year since we are breaking new records with the extended mileage and life of the wheels." (Joseph Nemecek, Technical Director, Prague Metro)



Ease of Maintenance: Kelsan® LCF Interlocking sticks nest on top of each other for a seamless transition from stick to stick.

Using Grease and Oil Vehicle Contamination



Using Kelsan® LCF No Vehicle Contamination

