

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.

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.

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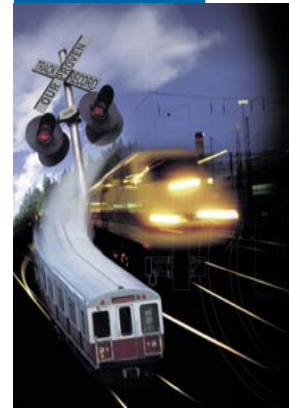
ISO 9001: 2000 CERTIFIED

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KELSAN TECHNOLOGIES CORP.

INNOVATIVE ThinFilm FRICTION CONTROL



Kelsan® Trackside Freight Solution

Intelligent Trackside/Wayside TOR Friction Control System

Kelsan® KELTRACK® Liquid Top-of-Rail Friction Modifier
Portec Rail Protector IV® Trackside Top-of-Rail Application System

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Kelsan® delivers robust, integrated friction control solutions that offer freight authorities unprecedented power and flexibility in managing operational issues. The dynamics of the wheel/rail interface present a multitude of problems for freight operators from high rail wear to high lateral forces.

Kelsan® KELTRACK® is a proprietary, proven Top of Rail (TOR) friction modification product that is revolutionizing wheel/rail interface dynamics by reducing rail wear, lateral forces, track structure wear, and noise.



Kelsan® KELTRACK®, in partnership with Portec Rail Products Inc. PROTECTOR® IV delivery system, solves a number of key problems in the rail industry. This proprietary friction modifier and delivery equipment has been engineered to provide significantly reduced rail wear, noise, and a reduction in lateral forces.

Extend Rail Life

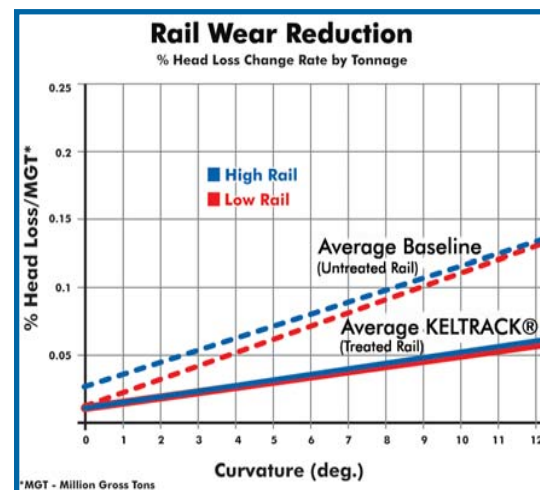
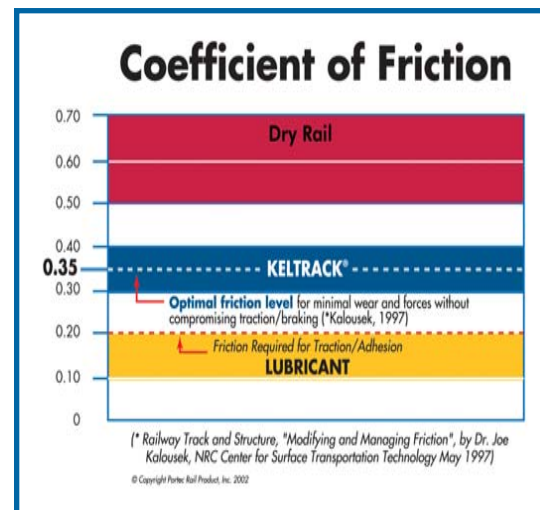
What is Friction Control?

Kelsan® KELTRACK® is designed to provide an intermediate coefficient of friction on the top of the rail. It is water based liquid friction modifier that is applied directly to the top of rail in targeted areas. When the water evaporates, the material remains present as a thin, dry film. In contrast with standard lubricants (oil or grease), Kelsan® KELTRACK® has an intermediate coefficient of friction (0.35) which means it will not affect traction or braking. This intermediate friction level on the top of the rail is optimum for minimizing wear, energy and lateral forces in a safe and reliable manner.

EXTEND RAIL LIFE

Kelsan® KELTRACK®, and Portec Rail Products application system combine to deliver a highly effective solution which dramatically increases rail life. Each year locomotives and heavy axle loads create an immense amount of friction on the top of rail. As a result, the increased wear caused by this friction costs freight railroad companies millions of dollars a year in rail replacement costs. Kelsan® KELTRACK® provides an intermediate coefficient of friction (0.35) to the top of rail which minimizes rail wear without affecting traction or braking. As a result, freight railroad companies can dramatically defer rail replacement costs.

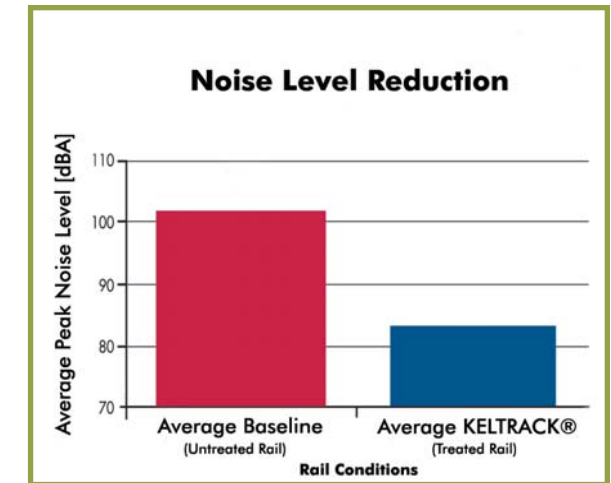
- Increase rail life by several years
- Targeted curve applications
- Environmentally friendly, non-toxic & non-flammable



NOISE REDUCTION

Kelsan® KELTRACK® and Portec's application system combine to deliver a highly effective noise reduction solution. Wheels experiencing lateral creep in curves are subject to roll slip oscillations as a result of the frictional characteristics of the interface layer between the wheel and rail. These roll slip oscillations are amplified in the wheel web leading to the familiar squeal as trains negotiate a curve. Noise reduction results have been achieved of up to 27 decibels. Eliminate the noise at its source.

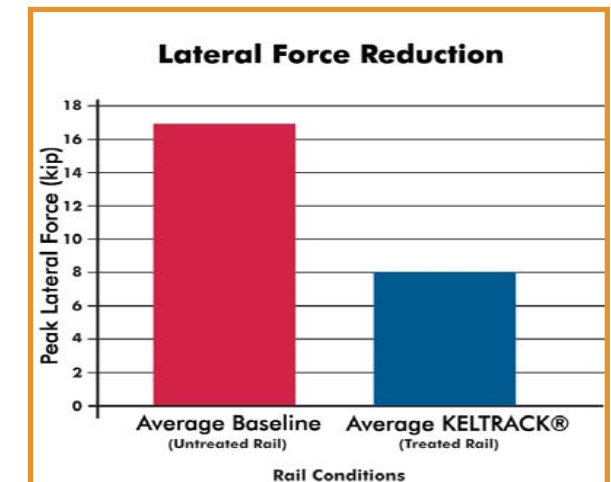
- Significant reduction in wheel squeal
- Targeted curve applications
- No effect on braking or signaling
- Environmentally friendly, non-toxic & non-flammable



REDUCE LATERAL FORCES

Kelsan® KELTRACK® using Portec Rail Products Inc. application system leaves a thin film of liquid friction modifier that quickly dries and leaves an optimum friction level on the top of the rail. This optimum friction level reduces lateral forces caused by heavier axle loads, higher train speeds, and poor wheel conditions. As a result, 10° curves perform like 6° curves.

- Reduce lateral forces by up to 50%
- Reduce derailment potential
- Extend track structure component life



How is Kelsan® KELTRACK® applied?
In co-operation with Portec Rail Products Inc., Kelsan® KELTRACK® is applied using a model of the PROTECTOR® IV Trackside Friction Control System. The DC Solar power option is ideal in even the coldest of climates. When AC power is close and convenient, a universal power conditioning device allows for voltage input of 100 - 240 volts at 50 to 60 Hz, including lightning surge protection.



Dependable Quality
Kelsan® KELTRACK® is manufactured to meet Kelsan's highest level of quality. Kelsan is an ISO 9001:2000 registered company for design, manufacturing and technical sales support of friction control systems.

KELTRACK® Trackside Friction Modifier shown is for photographic purposes only. Application rates are considerably less.

