Wabtec CORPORATION

GREEN FRICTION LINE

New green-line sintered products set standards in performance and sustainability.

Reducing fine particle emissions without compromising performance, durability, and safety is key in today's development of innovative friction materials. Wabtec's Green Friction solutions addresses these needs. Green Friction technology is the result of both Wabtec's expertise in friction materials and the company's significant investment in accurately measuring braking-particle emissions. Our cutting-edge solution is reducing particle emissions from friction braking on trains.

URBAN CHALLENGES

We're committed to improving air quality and preserving our environment, especially in urban areas and tunnels where air quality is a challenge.

Wabtec's Green Friction Line significantly improves urban air quality. Over the past year, this technology has undergone rigorous testing with Paris region operator, RATP, and has proven its ability to reduce particle emissions from friction braking on metro trains by up to 90 percent. RATP and Wabtec equip trains that operate on one of the busiest lines in Europe with this new technology. This technology represents a significant milestone on the journey towards cleaner tunnels for passengers and network personnel.

BENEFITS

Reduced emissions from friction braking by 60% for PM10, 80% for the PM2.5, and 90% for PM1.

Optimized life cycle cost when green friction is paired with high- grade cast iron (patented friction pair).

Increased pad life cycle up to 4.5 times compared to traditional organic pads.

Low noise, compatible with urban applications.

Plug and play, no brake system setting adjustments needed.

Addresses the latest evolution in standards (e.g. EN15328)

Up to 90%

Less fine particles mass during brake application.

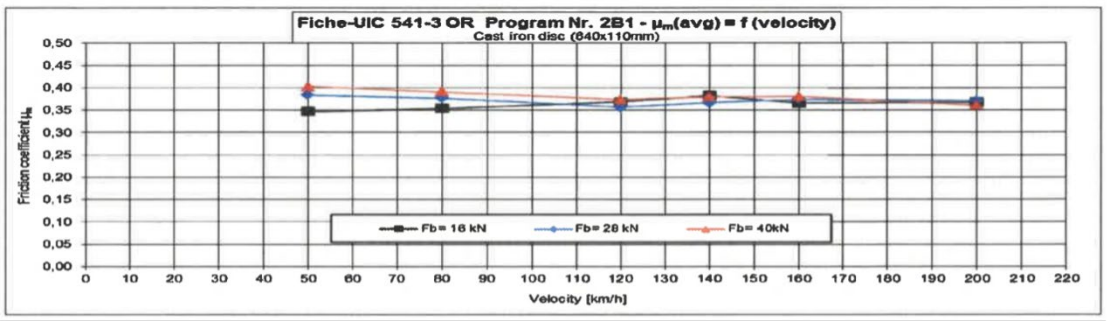
UIC 541-3 AND EN 15328:2020 COMPLIANT

The Green Friction product portfolio was developed to meet current and future regulatory standards regarding air pollution and friction performance.

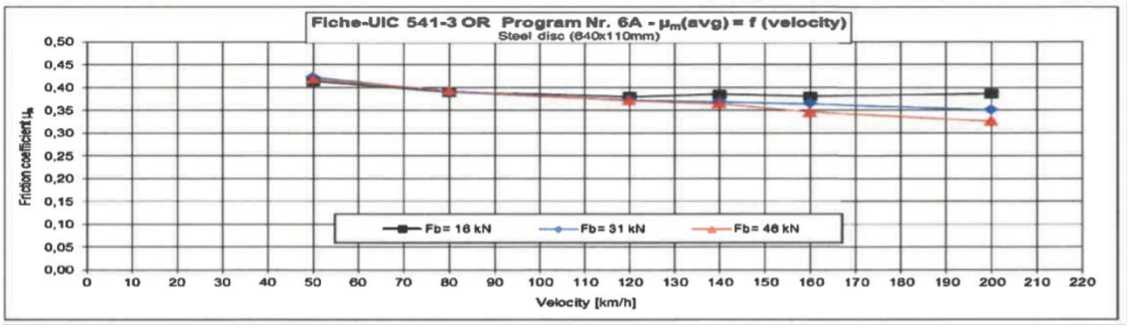
UCI 541-3 8th Ed.	Type 4.3	**SP140FF 350**	UIC certified
EN 15328:2020	Class C2	**SP140FF 350**	Compliant

FRICTION PERFORMANCE

Typical friction coefficients for axle mounted discs according to UIC program 2B1. The tested pad was the SF140FF/350.



Typical friction coefficients for axle mounted discs according to UIC program 6A. The tested pad was the SF140FF/350.



*OTHER GREEN FAMILY MATERIALS EN 15328-COMPLIANT

EN 15328:2020	Class D1 & D2	**SP140RE/T36**	Compliant
EN 15328:2020	Class D2	**BMBS 570***	Compliant
EN 15328:2020	Class F1 & F3	**CFSP150/T42**	Compliant

CONTACT

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Wabtec CORPORATION

BLUE FRICTION LINE

New blue line organic products set standards in performance and ecology.

Comply with demanding new performance standards while improving sustainability.

The rail industry wants to become more sustainable, and the development of new friction materials that dramatically reduce particle emissions represents a bold step forward. With new railway brake-pad materials needing to meet upcoming changes in UIC 541-3 8th edition and EN standard 15328:2020, Wabtec is once again out in front, introducing a new product family that addresses an evolving industry's performance and sustainability demands. A unique performance in dry and wet supports an easy setup of the brake system. The excellent wear behavior optimizes the life cycle cost while contributing to low particle emission during brake activation. Wabtec develops Blue Friction technology products without using substances potentially harmful to aquatic life.

EN15328 COMPLIANT

FP 94 is a product in the Blue Friction family that has literally passed the test: it is the first organic pad to receive compliance certification according to EN15328:2020 class B1.

EN 15328:2020	Class B1	compliant
UIC 541-3 8th Ed.	Class B1	compliant
EN 45545-2 :2020	Class HL 1, 2, 3	compliant

DESCRIPTION OF MATERIALS FOR THE BLUE FRICTION LINE

We commit to improve air and water quality to preserve our environment. We do so by developing:

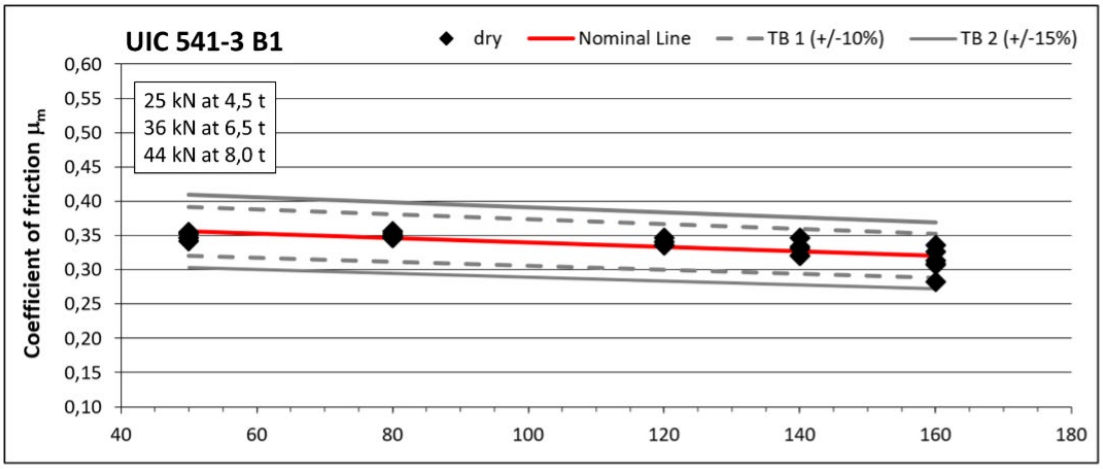
- Recipes without substances harmful to aquatic life
- Recipes without carcinogenic substances
- Recipes with reduced CO_2 in the production process

And that are:

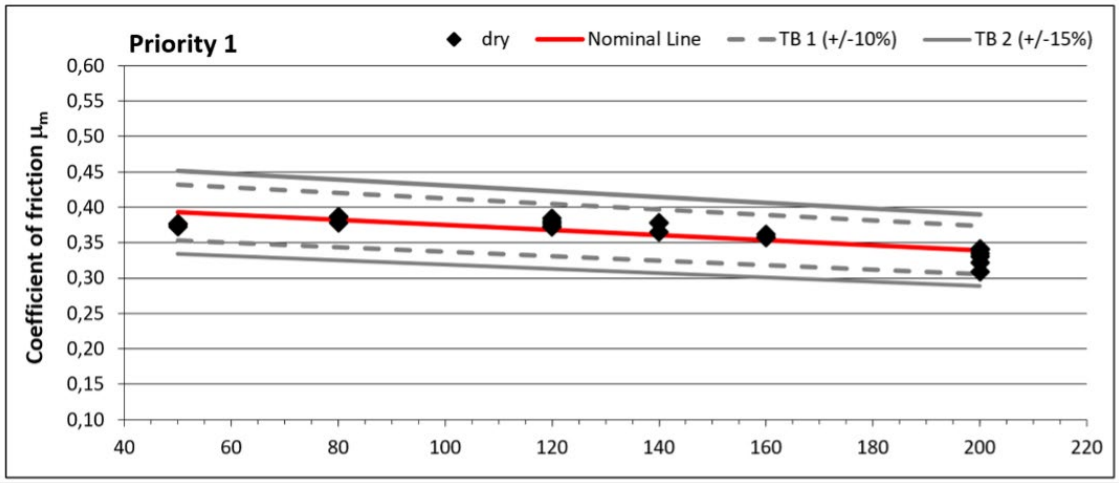
- Free from critical curing and processing aids
- Free from fluorides and halides
- Free from lead, asbestos, chromium, and crystalline silicates

FRICTION PERFORMANCE

Typical friction coefficients for wheel-mounted discs according to UIC program B1 (160 km/h) and EN15328. The tested pad was the FP 94.



Typical friction coefficients for axle-mounted discs according to UIC program S1 (200 km/h) and EN15328. The tested pad was the FP 94.



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