TEXTAR®

TMD FRICTION **TMD Friction UK Ltd**
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TEXTAR®

Who do you rely on?
Exposing the truth about low cost brake friction.

SUPPLIERS OF ORIGINAL EQUIPMENT
TMD FRICTION



At 56 mph, in driving rain and nose-to-tail traffic, who do you rely on?

When your customers are depending on you to deliver, you rely on your vehicle to perform safely and efficiently, mile after mile, even in the harshest of conditions, at motorway speeds and under the strain of heavy loads.

Brake failure is every driver's worst nightmare and an all too common occurrence. At best it means costly downtime and maintenance. At worst, lives and livelihoods are at risk.

Despite an awareness that brakes are a safety-critical component, the difference in performance between quality brands like Textar and low cost alternatives are often underestimated. The temptation to fit low cost replacement brake pads, linings and accessories can become too great when companies are under pressure to manage rising running costs, which is hardly surprising when manufacturers of low cost friction are resorting to dirty tricks campaigns and distorting the truth in order to pass off their products as comparable in quality to premium brands.

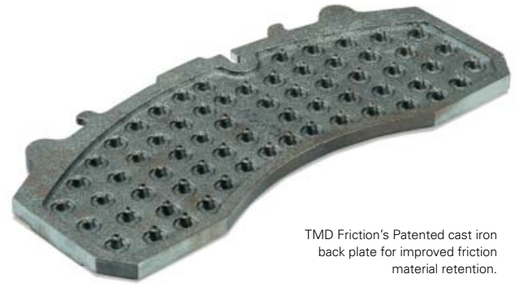
It's also hard to believe that a manufacturer of such a safety-critical component would deliberately aim to mislead the market when there's so much at stake, but that's exactly what happened when Juratek recently published claims that their OEC1 friction materials had outperformed Textar T3050 during a recent test carried out on their behalf.

The test results that they chose to publish focused on rates of pad wear. Juratek OEC1 material was shown to wear at a lower rate but, without seeing what the coefficient of friction was during these tests - which, in simple terms, is the friction level or 'stopping power' - their results only tell half the story.

At TMD Friction, we invest heavily in research and development and go to great lengths to ensure that our friction products provide the optimum balance of performance, comfort and durability for individual vehicle applications. We strive for excellence and, as Europe's leading manufacturer of original equipment (O.E.) friction, we've earned a reputation that we go to equally great lengths to protect.

Therefore, in order to demonstrate why low cost friction isn't just a false-economy, but potentially a significant safety risk, we've conducted some tests of our own.

It's time to set the record straight.



TMD Friction's Patented cast iron back plate for improved friction material retention.

And it's not just reputations that are at stake...

Serious accidents involving heavy goods vehicles are unfortunately a daily occurrence on the UK's road network. If the worst were to happen, and the cause found to be component failure directly related to fitment of a non-genuine or non-O.E. part, are you aware of the consequences?

New corporate manslaughter legislation passed in 2007 now makes it possible for company directors or senior management to be prosecuted resulting in stiff fines, or even prison sentences, if a fatality occurs and it is deemed that they have failed to take adequate steps to prevent it.

Liability can also pass down through the supply chain, leaving anyone who supplies inadequate parts equally exposed to criminal prosecution.

The truth is out there. Putting our competitors' claims to the test.

At TMD Friction, as part of our commitment to our customers, we believe that they are entitled to fair, honest and accurate information about our products that will allow them to make an informed decision when it comes to choosing replacement brake friction.

That's why, as part of our investigation into Juratek's claims, we were steadfast in the opinion that our own tests should be both comprehensive and fair. We therefore designed a testing programme that would compare Textar and Juratek brake pads for not only pad wear, but also performance in terms of coefficient of friction.

Rather than simply conducting simulations inside a laboratory on a dynamometer in the way that Juratek did, we also asked a leading UK logistics company, Ramage Transport, if they would conduct their own, independent, test under real-life conditions.
Whilst dyno' tests are effective in measuring the characteristics of a friction material in very controlled conditions, and can simulate actual vehicle loads and braking force, they cannot represent the effects that weather, salt and vibration can have on a braking system. Therefore when developing new friction materials, as well as dyno' tests our conventional testing programme includes many thousands of kilometres of on-road testing before being approved for production.

In order to ensure that Textar was given no advantage, we used Juratek's heavy-duty, or 'Alpine' friction material, OEC2, instead of OEC1. And when it came to the road tests, Ramage Transport's Workshop Manager was asked to buy both the Textar and Juratek test samples over the counter from their usual distributor to avoid any accusations that we could have tampered with them in advance.

We were confident that the results would contradict Juratek's claims but, as you can see from the data overleaf, we could not have predicted just how conclusive our tests would prove.



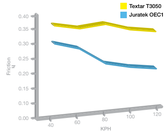



Phase one: Dyno' tests

The first phase of our testing programme saw a series of tests conducted using a dynamometer, which simulates braking at controlled speeds and temperatures.

A maximum 6 bar of pressure was maintained during the tests to replicate constant pedal effort and friction performance measurements were taken at 100°c, 300°c and 500°c. On these graphs, the vertical axis shows the coefficient of friction (friction level or 'stopping power') of the friction material, whilst the horizontal axis shows speed.

1. Braking tests conducted at 100°c

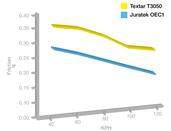


100°c is below normal running temperature, however this graph represents how the friction material might perform when approaching a stop after travelling at a constant speed for a significant amount of time - i.e. when a vehicle leaves a motorway after a long journey, with brake temperatures at ambient temperatures, and needs to decelerate quickly or stop for a junction.

At this temperature, the performance seen with the Textar material is within normal operating levels and would provide satisfactory deceleration without excessive pedal pressure being required.

In contrast, the low performance seen with the Juratek material would mean a much greater stopping distance and most likely lead to the driver needing to increase pedal effort to a degree that could increase the temperature within the braking system. This could potentially cause damage to piston boots and lead to caliper damage.

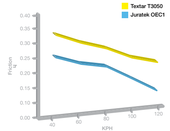
2. Braking tests conducted at 300°c



300°c is regarded as being in the typical working temperature range and again the Juratek product displays poor performance. It is speed sensitive, which means that the friction level continues to fall as speed increases, so with more speed the brakes become progressively more inefficient.

Again these results demonstrate the inferior performance of the Juratek material resulting in high line pressure to achieve a vehicle stop. If the same line pressure were to be applied to both materials stopping distance with Juratek would be much greater than the same vehicle fitted with Textar material.

3. Braking tests conducted at 500°c

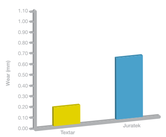


500°c is within the typical temperature range of a laden vehicle operating in extreme or mountainous regions.

The friction level that the Juratek material demonstrated is starting to become very low at these higher temperatures and maximum line pressure will be needed to stop the vehicle. However if anything unexpected happens during the vehicle's deceleration, then no additional line pressure is available to increase the rate at which the vehicle could stop. The Juratek material offers no margin of error in the driver's part nor will it offer any additional stopping power in an emergency.

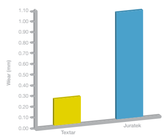
The second series of graphs shown here represent the results of our wear test, with measurements taken after 250 stops from 60-10 kph across the most common operating temperatures. On these graphs, the vertical axis shows pad wear (in millimetres).

1. Pad wear test conducted after 250 stops at 200°c



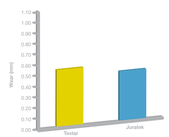
Although typical journey temperatures vary, the results of this test show that at motorway speeds with check braking (typical in moderate or heavy traffic situations) the rate of wear is significantly higher on the Juratek material than with Textar.

2. Pad wear test conducted after 250 stops at 300°c



Brake pads commonly reach temperatures of 300°c during stops from motorway speeds – when exiting a motorway, for example. The test data shows that vehicles continually operating in this way could expect to see pad wear rates ten times higher when using Juratek friction compared with Textar.

3. Pad wear test conducted after 250 stops at 400°c



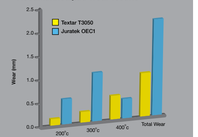
At higher temperatures, common for vehicles operating in extreme or mountainous regions and during emergency braking, the Juratek and Textar friction materials both wear at a similar rate. However we consider it more important under these conditions that our brake pad materials still offer good performance in circumstances where it will certainly be needed.

Summary

The performance tests showed the Juratek material to offer significantly lower friction levels, even at low to medium temperatures, with the greatest difference being at high operating temperature where the coefficient of friction for the Juratek material dropped to dangerously low levels.

Looking at the wear test results in isolation, Textar again outperforms Juratek up to the higher operating temperature where pad wear rates were found to be similar. However, it is clear from the performance graphs that the Juratek pads will require around twice the line pressure to achieve the same rate of deceleration as the Textar pads.

Accumulated pad wear results



Phase two: Real life tests

In order to see how our dyno' tests translated into real life, the second phase of our testing programme saw a series of tests conducted by Ramage Transport, a UK logistics company.

Using two identical DAF 95 truck and trailer combinations, one was fitted with the Juratek OEC2 material to the front axle, the other with Textar T7400.

During fitting, the workshop reported that the non-O.E. accessories supplied with the Juratek brake pads were unable to be fitted due to inaccurate sizing. If an O.E. accessory kit could not be quickly and easily sourced, many less diligent fleet workshops may simply re-use the existing (worn) accessories, which can lead to an increased chance of failure.

Unfortunately, after only 68 days and 17,000 miles, the tests were aborted by Ramage Transport due to concerns over the condition of the Juratek brake pads, which were found to have deteriorated to dangerous levels.

The following pictures were taken after removing the brake pads from the test vehicle.

Textar T7400

Textar T7400

Textar T7400 Juratek OEC2

Distortion and weakening of the Juratek top spring allows movement of the pad in the caliper and misalignment with disc under braking.

Juratek OEC2

Severe delamination due to poor manufacturing process and control.

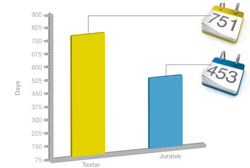
Juratek OEC2

Surface cracking and delamination leading to serious disintegration of the friction material.

Projected brake pad life expectancy

Based on the test results, the projected life expectancy of Juratek OEC2 is 453 days, assuming that the brake pads retain their integrity, where as Textar T7400 would be expected to last for 751 days in normal use, and will continue to give good, consistent and predictable performance throughout its life and in all conditions.

Brake pad life expectancy



'Performance, cost and safety, are all key considerations when specifying our vehicle parts. Within our workshop purchases we monitor brake component expenditure very closely.

As part of this audit process we recently ran a vehicle test to evaluate the life of O.E. pads versus non-genuine brake pads. The products we tested were Textar T7400 versus the Juratek OEC2 brand. Running two identical DAF 95 (6x2) tractor/trailer combinations, on similar routes and loading, we fitted the O.E. Textar pads to the front axle of one vehicle and Juratek to the other.

After only 68 x days (17,000 miles) we abandoned the tests because the Juratek pads were breaking up and we were concerned regarding vehicle safety.'

***Robin Ramage Snr** Company Director*



The hard facts

Why less certainly isn't more when it comes to low cost friction.

Comprehensive dyno' and vehicle testing conclusively proves that Juratek OEC1 and OEC2 friction materials fail to live up to the claims made about them. We would question whether fleet operators would put their trust in them, and other low cost brands, if they knew the answers to some of the more searching questions we'd like to ask:

Origin

TMD Friction manufactures all its CV brake pads in Germany at state of the art factories. Research and development is carried out at TMD Friction's global R&D centres, responsible for some of the greatest improvements in friction technology over the last four decades, including TMD Friction's patented back plate designs which uniquely retain the friction material to minimise the risk of material detachment - one of the most common reasons for component failure in a brake pad.

Juratek sources all its products from supplies in China and India with any R&D entirely in their suppliers' hands. For instance Juratek brake pads use no mechanical attachment to secure the friction material to the back plate.

If their product fails, ask yourself 'who owns the liability?' If their brakes fail to stop, where does the buck stop?

Material portfolio

As a leading supplier of O.E. friction, TMD Friction works closely with the vehicle and brake system manufacturers to engineer a range of friction materials that are specific to individual vehicles and braking systems, to provide the optimum friction for different vehicle platforms and loads.

Juratek sources material across all applications on the basis of cost and availability with no input into the friction development.

O.E. approvals

TMD Friction has more than 50 current CV material approvals from most of Europe's brake system and truck manufacturers, including Arvin Meritor, BPW, DAF, Iveco, Knorr-Bremse, Mercedes-Benz and Volvo.

Juratek – or rather their Chinese and Indian suppliers – have none.

Accessories

As the use of genuine accessories is so important to correct fitment, TMD Friction ensures that Textar CV brake pads are supplied with accessories that comply with O.E. patents and standards.

Juratek's non-O.E. accessories have been proven to be insufficient quality and prone to failure, with potentially disastrous consequences. In the unfortunate event of a brake related accident, caused by the failure of non-O.E. components and accessories, the supplier could be legally responsible and liable for any claim.

Conclusion

With half of the trucks, trailers, buses and coaches on Europe's roads equipped with TMD Friction brake pads or linings, either Aftermarket or O.E., we believe that we have a responsibility to continually improve the quality of the friction products that we manufacture and, when it comes to ensuring the safety of our customers, we literally stop at nothing.

Each year, we make a considerable investment in R&D and improvements in manufacturing processes in order to achieve this, as well as to ensure that our products offer exceptional value. We've challenged Juratek to explain their R&D process and list their O.E. approvals, however we're still waiting.

If you would like further information about Textar friction products, or about any of the test data illustrated within this brochure, please contact your TMD Friction Area Sales Manager.