
LOW ROLLING RESISTANCE
ECOPIA TRUCK TYRES
& BANDAG RETREADS.
HELPING YOU HELP
THE ENVIRONMENT.
ECOPIA
bandag
BRIDGESTONE
Solutions for your journey

Bridgestone takes up the environmental challenges of today and tomorrow with Ecopia

Bridgestone aims to be your reliable and committed partner in reducing operating costs and in acting more responsibly towards the environment.

Ecopia is Bridgestone's flagship brand that helps to reduce CO_2 emissions through improving vehicle fuel efficiency.

BRIDGESTONE ECOPIA

A wholehearted commitment to environmental protection

Bridgestone globally historically has a strong environmental conscience. In New Zealand over the last decade, we have spent millions of dollars investing in the protection of the environment, on such activities as:

- Development and manufacture of low rolling resistance tyres, resulting in reduced fuel consumption
- Noise reduction of factory plant and machinery
- Dust and emissions control measures
- Water recycling and monitoring of usage

Our ongoing commitment to ISO 140001: Environmental Management Systems accreditation is testament to our commitment to protecting our environment.

Ecopia results in cost savings and in acting responsibly towards the environment

Cost savings

- Fuel savings
- Lower cost per kilometre

Acting responsibly towards the environment

- CO2 emission reduction
- Recycling through retreading
- Economical use of raw materials

Reduce your CO_2 emissions

For every litre of diesel that is saved, 2.7kg* of CO_2 emissions are also saved, so you have the benefit of reduced carbon emissions as well as the fuel savings.

*1L of Diesel = 2.7kg of CO_2 emissions is listed on the Australian Government website www.environment.gov.au/settlements/transport/fuelguide/environment

On average, a large fleet spending $20 million on fuel uses 14.3 million litres of diesel per year. Change to Ecopia for:

Up to 6% total cost saving per year^
Up to 857,000 less litres of fuel used per year
Up to 2.3 million kg less CO2 generated per year

If a fleet of 50 trucks changed to Ecopia, the reduction in fuel and carbon emissions would be the equivalent to taking 3 trucks off the road.

^Figures based on rolling resistance measurements of Bridgestone premium product and Bridgestone Ecopia then correlated to fuel savings using rolling resistance quotients calculated from Secrets of Better Fuel Economy, published by Cummins in 2006. Actual fuel consumption savings will depend on factors such as vehicle configuration, load, speed and driving style.

Get a grip on all the factors which can reduce fuel and tyre costs

In other words, take charge of all controllable influencing factors:

Tyre selection

Maximise your impact on fuel consumption and CO_2 emissions through superior low rolling resistance tyres, developed using the newest technologies, and with little compromise on performance. The performance of new tyres is extended during the retread life, resulting in the lower total tyre life cost. Long service life also means the most economical use of raw materials. And do not forget that retreading is recycling.

Vehicle characteristics and maintenance

The advantages of good tyre selection and maintenance can easily be offset by vehicle characteristics and bad maintenance. The type of engine, air flow equipment and axle alignment are elements worth examining.

Tyre maintenance

Tyre pressure has a significant effect on fuel consumption and tyre life. A tyre which is 20% under-inflated will only last 75% of its service life. Bad tyre pressure management can wipe out fuel savings from low rolling resistance tyres. Regular checks are necessary to keep tyre pressure and mileage at the optimum level.

Driving behaviour

Education of efficient driving behaviour supported by the monitoring of on-board vehicle management systems is the recipe for fostering efficient driving styles. Drivers who drive efficiently consume on average 5 to 10% less fuel*, which is better for the environment and your costs.

*Source: www.truckbuyersguide.gov.au

Bridgestone tyre technologies are amongst the most advanced on the market

Ecopia compound

As drivers, we all have a responsibility to try to lessen the impact of our vehicles on the environment. As part of Bridgestone's commitment to this, we have created a tyre compound that reduces a vehicle's impact on the environment - without compromising on Bridgestone's legendary quality and safety.

The Ecopia compound is the result of global research and development of lower rolling resistance technology.

What is low rolling resistance?

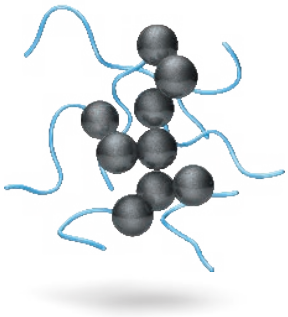
Rolling resistance is an important factor in determining fuel economy and CO_2 emissions. Put simply, it's the force required to roll a tyre. Lower rolling resistance means less fuel is required to power the vehicle, resulting in less CO_2 being emitted into the environment.

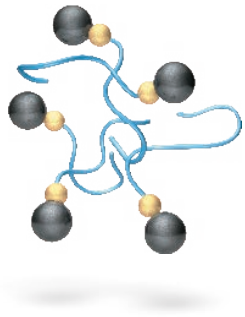
In a conventional tyre's compound, carbon molecules inside the tyre clump together, causing friction and generating heat. That leads to energy loss which increases rolling resistance.

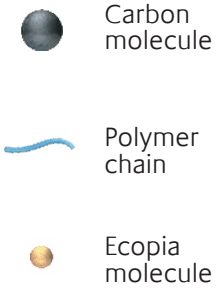
The Ecopia compound features state-of-the-art reinforcement particle technology which keeps the carbon molecules dispersed, minimising energy loss and rolling resistance.

By choosing these tyres, you will reduce your fuel consumption and more importantly, reduce the amount of carbon dioxide being emitted into the atmosphere.

Keep your business efficient, stay safe, help the environment, choose Bridgestone.







Standard carbon-reinforced compound
Carbon particles rub together during use, resulting in excess heat and loss of energy.

Ecopia compound
Featuring state-of-the-art reinforcement particle technology reducing heat build up and resultant rolling resistance without compromising on performance.

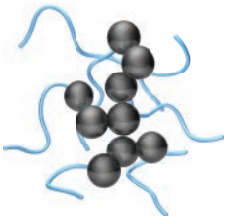
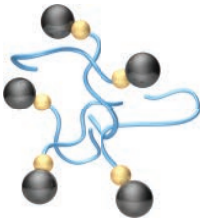
Actual fuel consumption and CO_2 emissions depend on factors such as traffic conditions, vehicle economy and individual driving style.

Bridgestone tyre technologies are amongst the most advanced on the market

State-of-the-art casing technology

The rolling resistance improvement predominantly comes from the technology in the casing, so:

- As the tyre wears, the rolling resistance advantage from the casing is still present.
- Casing advantage can be utilised for retreads.

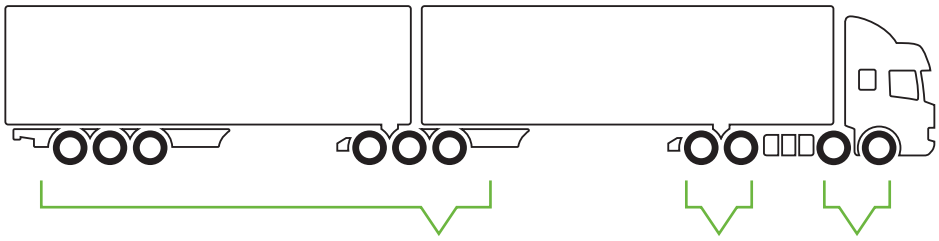
	Tyre shape	Sidewall compound	Tread compound
Conventional tyre		 Conventional Compound	Conventional Compound
Ecopia tyre		 Ecopia Compound	Conventional Compound

Ecopia new tyres: far beyond compromise

Fuel efficiency contribution of tyres by axle

The tyres' contribution to overall fuel efficiency is proportional to the axle load.

- Trailer tyres account for most of the total tyre contribution for a B-Double
- Together with Drive tyres they account for 91% of vehicle's rolling resistance
- Therefore, it is the Trailer and Drive tyres which are most critical in terms of fuel efficiency



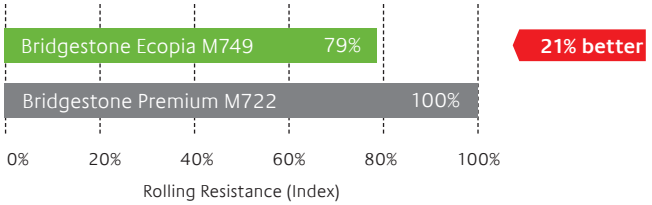
Axle	Trailer	Drive	Steer
Vehicle Load	66%	25%	9%
Contribution towards vehicle Rolling Resistance	66%	25%	9%

contributing to 91% of rolling resistance

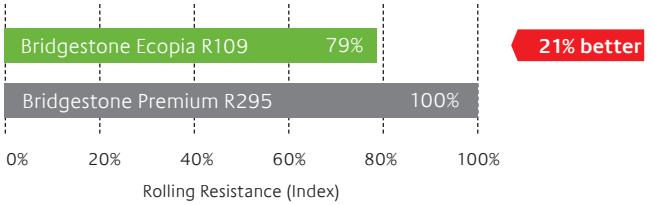
Ecopia for lower rolling resistance

Bridgestone's new Ecopia tyres are designed to significantly reduce rolling resistance. Measured under controlled laboratory conditions, Ecopia M749 drive and R109 trailer tyres offered 21% less resistance than conventional tyres. The graphs below display results from the rolling resistance coefficient indoor drum test using Ecopia tyres.

Drive tyre rolling resistance



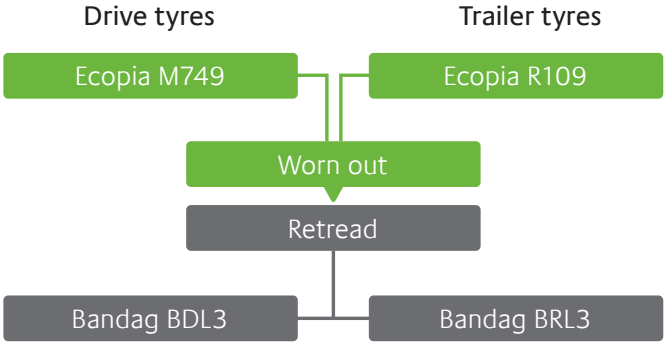
Trailer tyre rolling resistance



Bandag Retreads: extend new tyre life

Bridgestone casing are built to last. Bandag retreads extend the new tyre life further into and second and sometimes a third life. A Bridgestone Ecopia casing is recommended to deliver optimal low rolling resistance performances.

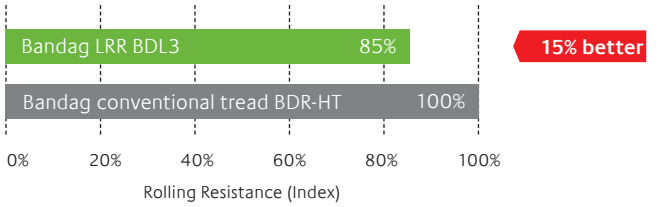
The new Bridgestone Ecopia drive or trailer tyres can be retreaded with Bandag low rolling resistance BDL3 or BRL3 for continued fuel saving benefits.



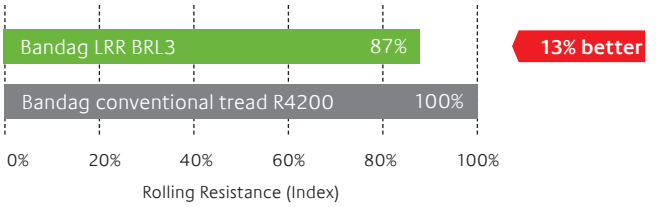
Bandag low rolling resistance retreads

Bandag is the leader in tyre retreads. Even with laboratory testing against Bandag's own premium retreads, there was a consistent reduction in rolling resistance of at least 13%. The graphs below display results from the rolling resistance coefficient indoor drum test using Bandag tyres.

Drive Bandag BDL3 rolling resistance



Trailer BRL3 rolling resistance



Retread production is better for the environment

It takes only 26 litres of oil to produce a retread, compared to 83 litres for a new tyre.

Bandag retreads & our environment

Retreading... our way to a better environment

Why?

Retreading is a highly practical and efficient form of recycling. Retreading makes it possible to re-use worn tyres. Instead of dumping tyres with worn out tread and good sidewalls, they can be rebuilt and put back to work again, and again.

Commitment to the environment

Protecting our environment for future generations is also important to the employees of Bandag. Not only is the retreading process environmentally friendly but in November 2001 Bandag Manufacturing Pty Limited became accredited to ISO 14001 by a third party assessor.

Reduce pollution

Tyre dumps are a major source of pollution. Not only are they an eye-sore, they attract vermin, hold water, create a breeding ground for mosquitoes and, most dangerously, are highly combustible, releasing toxic fumes and dense smoke into the atmosphere when ignited.

With retreading, tyres stay on the road longer so fewer tyres pile up in landfill dumps.

Save more than just money

5,830 tonnes of waste, 8.3 million litres of crude oil and 11,350 tonnes of carbon emissions. This is what you help to spare the New Zealand environment through retreading your casings with Bandag, rather than continually buying new tyres.

Less energy

Bandag's unique, advanced Cold Process Retreading technique uses less energy to create a product with a wear performance similar to that of a new tyre.

Whereas some retreads use a hot cap process with temperatures as high as 160° Celsius to cure retreads, Bandag's specially developed process uses a low 99° to bond the tread to the case.

Depending on its quality and condition, a well-constructed truck or bus tyre, can be retreaded 2, 3 or more times, and only one worn tyre casing requires disposal instead of many.

But that's not all

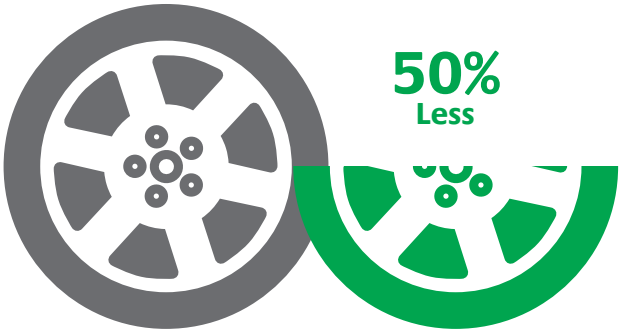
Let's face it; our money is a precious resource that demands careful management. That's why Bandag retreads appeal so much. Quality retreads are a lot less expensive than new tyres.

When you choose Bandag retreads you choose, consciously or unconsciously, to make a real contribution to the sustainability of our environment.

Petroleum Resources Used

New Tyre **100%** | Retread **20%**

Rubber Used In Product



New Tyre **100%** | Retread **50%**

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Product line up: new Ecopia tyres

Ecopia M749 drive

- Fuel efficient drive tyre
- Conventional tread compound
- No compromise on durability, irregular wear resistance and wet performance
- Excellent traction and wet weather handling
- Directional pattern
- Fuel saving casing for retreading

Size	LI/SS	OD	OW	Tread Depth (mm)	RPK	RW (inch)	Max Load (kg)*
11R22.5	148/145L	1056	283	18.3	313	7.50-**8.25**	3075/2830
275/70R22.5	148/145M	973	264	18.3	339	**7.5,8**	2940/2705

*Max Load @825kPa (single/dual)

Ecopia R109 trailer

- Fuel efficient trailer tyre
- Conventional tread compound
- No compromise on durability, irregular wear resistance and wet performance
- Can be used on steer axle of rigid trucks
- Fuel saving casing for retreading

Size	LI/SS	OD	OW	Tread Depth (mm)	RPK	RW (inch)	Max Load (kg)*
11R22.5	148/145L	1044	283	11.6	317	7.50-**8.25**	3075/2830
265/70R19.5	143/141J	865	256	12.4	382	7.5,8	2660/2515
255/70R22.5	140/137J	926	250	11.1	355	6.75,8	2500/2300
275/70R22.5	148/145L	957	265	11.1	344		
385/55R22.5	160K	1000	386	13	318	11.75,12	

*Max Load @825kPa (single/dual)

ECOPIA

Product line up: Bandag retreads

Bandag BDL3 Drive

The BDL3 retread is a fuel saving drive tyre with a low rolling resistance tread. It offers excellent traction and wet weather handling without compromising durability or irregular wear resistance. The fuel savings are further enhanced when the retread is applied to a Bridgestone Ecopia casing.

Casing Sizes	Tread Sizes	Tread Depth (mm)
265/70R19.5	210/220/230	19.0
295/60R22.5	250	19.0
275/70R22.5	240/250	19.0
295/80R22.5	240/250	19.0
11R22.5	210/220/230	19.0

Bandag BRL3 Trailer

The BRL3 retread is a fuel saving trailer tyre with a low rolling resistance tread. It offers excellent wet weather handling without compromising durability or irregular wear resistance. The fuel savings are further enhanced when the retread is applied to an Ecopia casing. The BRL3 can also be used on the drive axle of buses and small rigid trucks.

Casing Sizes	Tread Sizes	Tread Depth (mm)
245/70R19.5	210/220/230	19.0
265/70R19.5	210/ 220/230	19.0
255/70R22.5	210/220	19.0
275/70R22.5	240/250	19.0
11R22.5	210/220/230	19.0

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