



# ***REGROOVING IS WINNING***

NOT REGROOVING  
IS A WASTE

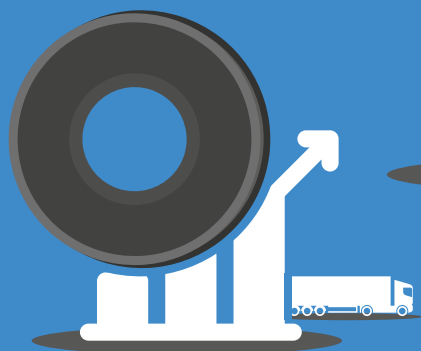


# NOW IS NOT THE TIME TO BE WASTEFUL!

The transport sector is currently having to cope with two demands:

## INFLATION

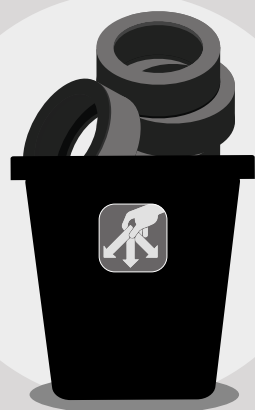
On the one hand, businesses are tackling inflation and are doing everything they can to protect their operating margins, and on the other, they are obligated to take urgent measures to effectively reduce their environmental footprint.



## ENVIRONMENTAL PRESSURE

Every kg of CO<sub>2</sub> saved counts more than ever. So how do you reconcile the two?

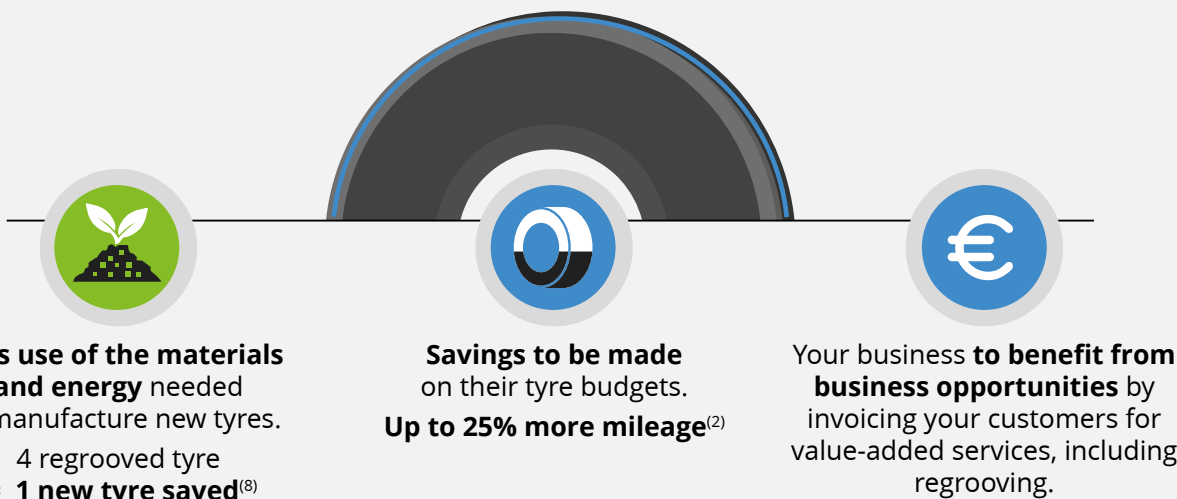




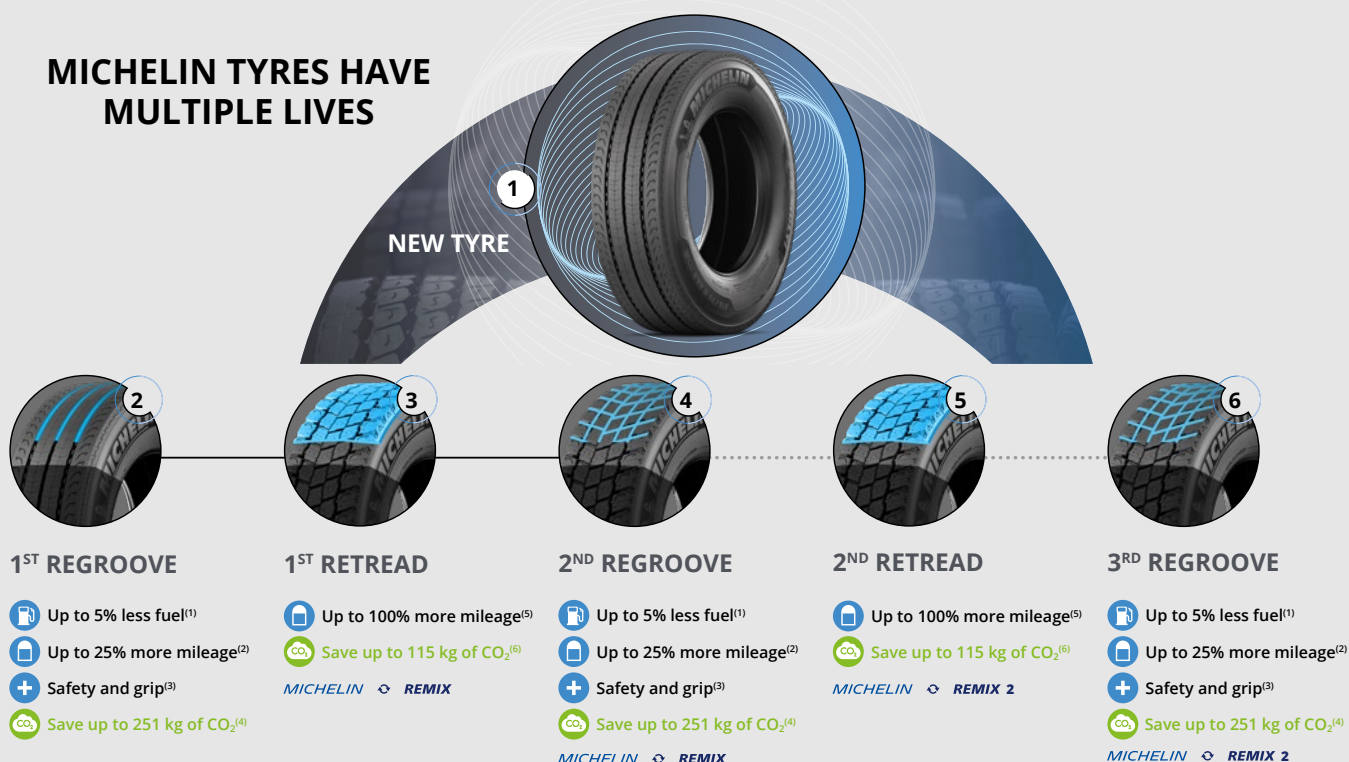
# SAY NO TO WASTING TYRES!

Make the most of their potential!

By assisting your carrier customers in implementing the Michelin multi-life model you allow for:



## MICHELIN TYRES HAVE MULTIPLE LIVES

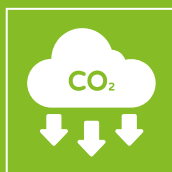


Legal statements to be found on page 7.

# **REGROOVING IS A WINNER ON EVERY LEVEL!**

## **For the PLANET**

Less  
CO<sub>2</sub>  
(4) and (6)



Less materials  
and energy  
consumed<sup>(6)</sup>



4 regrooves  
= **1 new tyre**  
saved<sup>(8)</sup>



## **For your ACTIVITY**



4 regrooves  
= **additional  
service  
margin**

Less fossil  
fuels used<sup>(9)</sup>



Remind your  
customers to use  
their tyres down to  
the legal limit!

## **For CARRIERS**



1 regroove  
= up to 25%<sup>(2)</sup>  
more mileage

# THE 6 MAIN MYTHS ABOUT REGROOVING TRUCK TYRES AND MICHELIN'S RESPONSE



## REGROOVED TYRES DON'T LAST AS LONG

**False** - regrooved tyres offer up to 25% more mileage<sup>(2)</sup>.



## REGROOVED TYRES AREN'T AS SAFE

**False** - on wet ground, regrooved tyres offer approximately 10% greater transverse grip and traction compared to the same worn tyres<sup>(3)</sup>. Regroovable MICHELIN tyres have the word "regroovable" on the side walls. They are designed to be regrooved. Consequently, regrooving improves tyre grip when performed in line with best practices.

## REGROOVING IS COMPLICATED



**False** -  
> the carrier simply has to keep sets of tyres in stock to prevent immobilization  
> 4 regrooved tyres = 2.5 hours' work  
> Michelin offers regrooving diagrams

## REGROOVING IS NOT PROFITABLE



**False** - **it's a win-win!**  
For you, it's an additional service margin, for your carrier customers, it's up to 25% more mileage<sup>(2)</sup>.

## REGROOVING MEANS TAKING THE RISK OF LOSING RETREADABILITY

**False** - with MICHELIN Remix®, whether or not tyres are regrooved has no impact on whether they can be retreaded<sup>(7)</sup>.

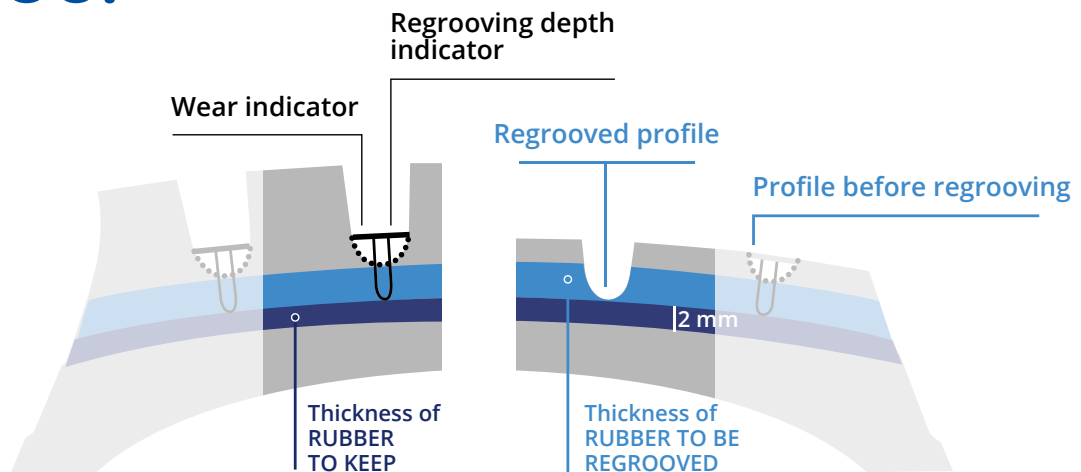


## REGROOVED TYRES ARE PROHIBITED IN WINTER

**False** - even in Norway you can fit regrooved tyres in winter! In order to reassure drivers, remember to tell them that regrooved tyres offer approximately 10% greater transverse grip and traction compared to the same worn tyres<sup>(3)</sup>.

# Winning arguments FOR YOU!

The ability of Michelin tyres to be regrooved is a solid sales argument to justify their new price. They are designed from the outset with an additional rubber thickness intended for regrooving. What's more, MICHELIN Remix® tyres are also regroovable. They have the U symbol or the word 'Regroovable' on their side wall.

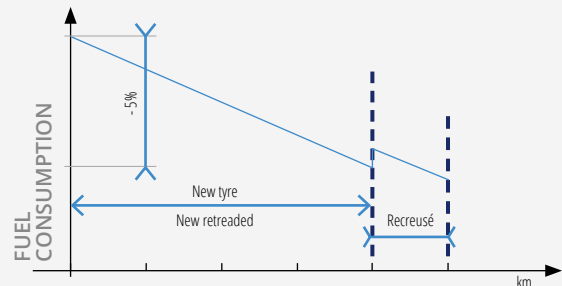
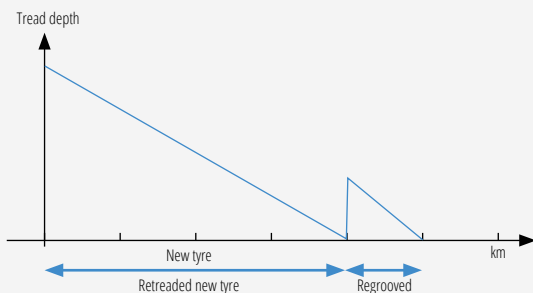


# Winning arguments FOR YOUR CUSTOMERS!

## Regrooving means...

- 1 - Up to 10% more grip<sup>(3)</sup> compared to the same worn tyres.
- 2 - Up to 25%<sup>(2)</sup> more mileage.  
This saves one new tyre for every 4 regrooves!
- 3 - Up to 5%<sup>(1)</sup> less fuel consumption.

When regrooving is performed at the time the tyre has the lowest rolling resistance, it also optimizes fuel consumption.



## EUROPEAN LEGISLATION - LEGAL WEAR LIMITS FOR TRUCKS IN THE MAIN EUROPEAN COUNTRIES

Only tyres with "regroovable" on their side walls can be regrooved.

1 mm	1,6 mm	2 mm	4 mm	NOT APPLICABLE
<ul style="list-style-type: none"> <li>- Denmark</li> <li>- EAEU<sup>(A)</sup></li> <li>- France</li> <li>- Portugal</li> <li>- Ukraine<sup>(B)</sup></li> <li>- UK</li> </ul>	<ul style="list-style-type: none"> <li>Belgium - Bulgaria - Croatia - The Czech Republic - Finland - Estonia - Germany - Hungary<sup>(C)</sup> - Ireland - Italy - Latvia - Lithuania<sup>(D)</sup> - Luxembourg<sup>(E)</sup> - The Netherlands - Norway - Poland<sup>(F)</sup> - Romania - Slovakia - Slovenia - Sweden<sup>(G)</sup> - Switzerland</li> </ul>	<ul style="list-style-type: none"> <li>- Austria</li> <li>- Greece<sup>(H)</sup></li> <li>- Serbia</li> </ul>	<ul style="list-style-type: none"> <li>- Turkey</li> </ul>	<ul style="list-style-type: none"> <li>- Spain</li> </ul>

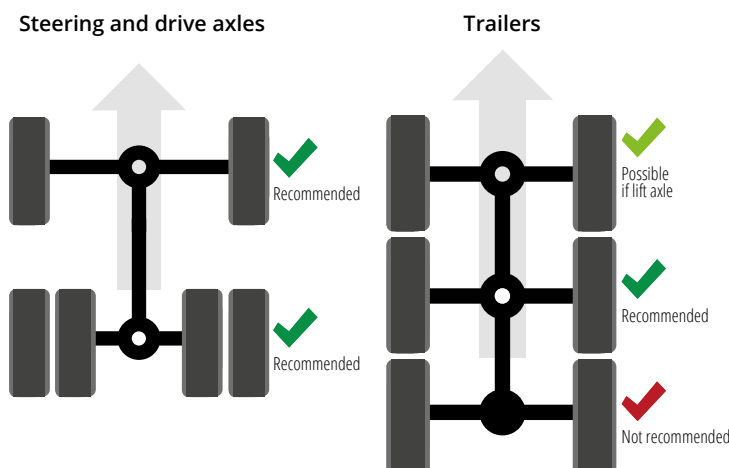
(A) Eurasian Economic Union: Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia. (B) 2 mm for coaches and buses / 1 mm for other HGVs. (C) 1.6 mm if the tyre diameter is < 750 mm / 3 mm if it is > 750 mm. (D) 7.0 mm for coaches and buses carrying over 8 passengers. (E) 1 mm for towed vehicles / 1.6 mm for engine-powered vehicles. (F) 3 mm for coaches reaching speeds of 100 km/h - 1.6 mm for other vehicles. (G) The tyres must be designed specifically for winter conditions. (H) 2.0 mm for the steering axle / 1.6 mm for other axles. For information purposes only, subject to changes in local regulations.

# Advice and TIPS

## PRACTICAL ADVICE ON REGROOVING!

Win your customers' loyalty and enhance your professionalism with advice that will allow them to make savings over the long term.

### Our advice on fitting regrooved tyres



## Your customers will make savings thanks to your advice



### TIPS

**"Make the most of the good weather to fit regrooved tyres and use them right up."**



### TOP TIP

**"When you receive your new trailers with 3 fixed axles:**



**Replace the new tyres on the 1<sup>st</sup> axle with retreads. Replace the new tyres on the 2<sup>nd</sup> axle with regrooved tyres."**

(1) 5.4% save in fuel consumption: internal study carried out at the Michelin test tracks in Ladoux (France) on 5 May 2021, under DEKRA supervision (report No. 21CPAEXT-030). For the comparison between new tyres and regrooved tyres (R5 mm), two identical Volvo FH500 trucks were used, fitted with 315/70 R 22.5 MICHELIN X<sup>®</sup> LINE<sup>™</sup> ENERGY<sup>™</sup> Z2 & D2 tyres and each towing a fully loaded (40 tonnes) Schmitz Cargobull trailer fitted with 385/55 R 22.5 MICHELIN X<sup>®</sup> LINE<sup>™</sup> ENERGY<sup>™</sup> T tyres at identical pressures (8.5 b, 7.5 b and 9.0 b). Results may vary depending on weather conditions, road type, tyre size and driving style.

(2) Compared to a worn, non-regrooved MICHELIN tyre. Information based on the recommendations made by the French tyre manufacturers' federation (TNPF) in 2019, according to which the regrooving of worn tyres increases tyre life by using all the available rubber.

(3) On wet ground, regrooved tyres offer approx. 10% greater transverse grip and traction compared to the same worn tyres. Internal study carried out by Michelin on a polished concrete track at Ladoux (France) in 2010; results may vary depending on the actual conditions of use.

(4) The CO<sub>2</sub> savings from the Michelin multi-life model, are accentuated thanks to the fuel savings linked to regrooving (up to 5.4%<sup>(1)</sup>).

According to a study under real conditions of use (using 315/70 R 22.5 tyres fitted to the drive and steering axles of a 4x2 truck used for international and national long distance, that have exceeded 50% wear), the average mileage for MICHELIN X<sup>®</sup> LINE<sup>™</sup> ENERGY<sup>™</sup> Z2 and MICHELIN X<sup>®</sup> LINE<sup>™</sup> ENERGY<sup>™</sup> D2 tyres is 232,200 km before regrooving\*

(\*Michelin internal source and calculation, based on measurements taken by the Michelin teams during customer inspections on 488 axles, in Austria, Belgium, Croatia, the Czech Republic, France, Germany, Greece, Hungary, Italy, the Netherlands, Poland, Portugal, Romania, Serbia, Slovenia, Spain, and Turkey, over the period from 2020 to 2023), with a simulation based on the results collected suggesting extrapolation of the lifespan until 3 mm remains. The results may vary depending on the weather and road conditions.

The view is that our tyres travel up to 25%<sup>(2)</sup> further thanks to regrooving, i.e. 58,050 km (232,200 x 25%). The fuel savings are calculated over the distance travelled by the regrooved tyres (58,050 km) at an average consumption of 29.5 L/100 km for new tyres and 27.91 L/100 km for regrooved tyres (source: DEKRA report No. 21CPAEXT-030). 29.5 x 5.4%, i.e., a saving of 1.59 L/100 km for an articulated truck and tri-axle trailer (thus 12 tyres) Consequently, there is a saving of 0.13 L/100 km per tyre (1.59 L/12), i.e., 0.13 L x 58,050 km/100 = 77 litres of fuel saved when driving on regrooved tyres, thus a saving of 77 litres of diesel x 3.24 kg of CO<sub>2</sub> = 251 kg of CO<sub>2</sub>. The emissions factor of 3.24 kg of CO<sub>2</sub> for 1 litre of diesel comes from the life cycle assessment conducted by ADEME for pure diesel. It includes emissions during the diesel production stages (17%) and during its combustion (83%).

Source: ADEME, Base Empreinte, Étude Carbone, Version 22.0.0, 02/08/2022. Thus 77 x 3.24 kg of CO<sub>2</sub> = 251 kg of CO<sub>2</sub>.

(5) The tread compound and pattern of MICHELIN Remix<sup>®</sup> tyres are largely the same as those used for new MICHELIN tyres. 90% of the MICHELIN Remix<sup>®</sup> tyre range is manufactured using the same mould and the same materials as new MICHELIN tyres and therefore perform equally well. According to internal tests conducted by the Michelin Research and Technology centre and customer testimonials collected in Europe since 2015.

(6) The CO<sub>2</sub> savings from the Michelin multi-life model are also accentuated by the raw material savings linked to retreading.

In terms of material savings, the average weight of a new MICHELIN tyre is 70 kg\*. The weight of a tyre ready to be retreaded weighs 50 kg\*\* on average.

The CO<sub>2</sub> impact from a retreaded tyre is linked to the material savings, i.e. 50 kg of raw materials saved, or 115 kg of CO<sub>2</sub>\*\*\* per kg of CO<sub>2</sub>\*\*\* per kg of raw materials.

\*Internal study based on the MICHELIN truck tyre sizes most sold on the European market: 315/80 R 22.5, 315/70 R 22.5 and 385/65 R 22.5.  
\*\*According to a TNPF publication from 2023: "retreading, which, by reusing the casing represents approximately 70% of a tyre's weight" (sic).

As a result, 70% of 70 kg = approximately 50 kg.

\*\*\*The emissions factor of 2.3 kg of CO<sub>2</sub> for 1 kg of tyre comes from the life cycle assessment calculations for the cradle to gate production of a tyre, conducted internally by Michelin using the calculation rules developed by the tyre manufacturing profession (via the global body, the Tire Industry Project (TIP), which brings 10 tyre manufacturers together around sustainable development themes). It includes the extraction of raw materials, transportation, manufacturing, and distribution stages.

Source: UL Environment Standard, «Product Category Rules for preparing an Environmental Product Declaration for the product category: Tyres», v3.05, February 2022.

Thus 50 x 2.3 = 115 kg of CO<sub>2</sub>.

(7) Internal source - MICHELIN Remix<sup>®</sup>: in 2018 and 2019 on 1,190,000 tyres over the 4 main dimensions on the market (315/70 R 22.5, 315/80 R 22.5, 385/55 R 22.5 and 385/65 R 22.5), there was no significant measurable difference in acceptance for retreading.

(8) 1 regroove means up to 25% more miles, thus 4 is up to 100% and therefore the equivalent of one new tyre saved.

(9) Fuel savings of up to 5% by driving on regrooved tyre (see legal statement 1).



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