

Tread Depth Law and The Effect of Tread Depth on Tyre (Tire) Performance



Current tread depth legislation in **Cyprus** requires that car tyres must have a **minimum of 1.6mm of tread** in a continuous band throughout the central $\frac{3}{4}$ of the tread width and over the whole circumference of the tyre.

However, despite the law, it is generally recognized in the tyre industry that the legal limit is an extreme. Many tyre manufacturers state that they design tyres to function as well at 1.6mm as they do at 9mm (the accepted normal tread depth when new). That is a surprising statement for any tyre company to make, but some have said just that.

So, if a tyre performs as well at 1.6mm as it does at 9mm, what happens at 1.5mm? Is there a sudden drop in performance? Actually there isn't, because industry testing has shown that when a tyre reaches around 3.5mm in tread depth, the level of performance in the wet, in particular, starts to deteriorate, as does its dry handling characteristics.

The recommended point for change is accepted **Europe-wide** as being 3mm. So much so that ministerial cars in the UK have their tyres changed at, you guessed it, 3mm.

Why then the current legal limit of 1.6mm?

There are several arguments against the change, some of which you may question. One is that the sudden change from 1.6mm to 3mm would have a serious impact on the pockets of hundreds of thousands of motorists who are already struggling to keep their cars on the road. Another is that it would require changing all the tyre moulds in use to increase the tyre wear indicator depth to 3mm. And of course Europe plays a part, as there would not be universal implementation of 3mm tread depth, requiring double standards in production and possibly in policing.

The reality is that since tyres are now a global commodity it would almost require a global adoption of 3mm as a minimum. It doesn't take an Einstein to counter the arguments against 3mm, but until the legislation is in place you can make up your own mind, scrape by on 1.6mm, or be safe on 3mm. Your choice.

But before you make that choice, it might be worth your while having a look at the video indicated at the bottom of this article. It might make you change your mind.

Truck tyres currently have a 1mm legal minimum tread depth - which many are trying to drive up to 1.6mm - for exactly the same reasons as they want to see 3mm for car tyres.

Incidentally - you may wonder why the normal new tread depth is generally around 9mm. This is to do with the slip, ie distortion in a tyre block, and its level of hysteresis. If you take an eraser and holding it vertically, draw it across a desk, you will see that it distorts before it loses grip - that is what we call "slip". If you increase or decrease the length of rubber you are flexing, the slip increases or decreases. It becomes obvious that too much slip would make a vehicle unstable. Remember that the compound is a compromise too and the ratio of slip to tread block and the compound used is all finely tuned. The industry norm is for car, van and SUV treads, 9mm.

The Impact of Tread Depth on Tyre Safety

The braking and grip performance of tyres in wet weather deteriorates considerably once the tread depth reduces below 3mm. This is because the main function of the tread pattern of a tyre is to evacuate water. As the tread depth decreases it gradually loses the ability to evacuate all water from the road surface under the tyre and the car will eventually aquaplane.

Many tyre tests have shown that the wet braking distances of a new tyre compared with a tyre with only 1.6mm of tread left on it are huge and can be the difference between life and death.

More Tyre (tire) information can be found at <http://www.tyres-online.co.uk/>