Scrubbing in Tyres

From Avon

Solutions are often used on tyres during the curing process. This solution helps rubber flow and reduces defects. It is designed to blend in with the rubber. However, it can reduce grip if applied in large amounts. Most manufacturers have eliminated the use of this solution however.
In simple terms, the surface of a tyre needs to be broken to help the tyre grip. This is where running in tyres is important. If power is applied too early i.e. before the tyre has warmed up, large tears can appear on the tread surface, this is called cold tearing and reduces the mileage of the tyre.
Tyres can be 'scrubbed' in wet conditions but it takes much longer and is not advisable due to the initial reduced grip.
When tyres are first run, many of the long chain molecules break down, when the tyre cools, the molecules reform in a more uniform way, the tyre then runs cooler and is less likely to over heat.

Our official line at Avon is - When new m/c tyres are fitted, they should not be subjected to maximum power until a reasonable 'running in' distance has been covered. 100 dry miles (160km) is the recommended minimum (discount any wet miles covered).

Best regards,

Peter J McNally

M/C Technical Product Manager, Avon Tyres

From Dunlop

Running tyres in
The best way to scrub tyres in is to simply get out and ride on them.

For the first mile or so keep the bike as upright as possible. This will give you a good area within the central portion of the tread surface that is scrubbed-in.

From here you want to increase your lean angle a little at a time, always keeping a portion of the scrubbed-in tread in contact with the road as you scrub-in a fresh part, leaning further and getting ever closer to the tread's edge as the miles go by. Make sure this is done on both sides of the tyre.

One mistake that a thankfully small amount of riders make is when leaving the dealer's premises within the first few metres of having the tyre fitted. When turning onto the road some riders lean the bike more than they should and then accelerate into the traffic, causing the new tyre to slide or spin up, dumping them in the road.

During the scrubbing-in process, tyres should not be subjected to maximum power, sudden acceleration and braking, or abrupt and/or hard cornering until a reasonable running-in distance of approximately 100 miles has been covered. This will permit the rider to become accustomed to the feel of the new tyres or tyre combination and to gradually scuff the tyre's surface from edge to edge in order to achieve optimum road grip.

The surface of the tyre can actually be scrubbed-in in less distance than 100 miles but this doesn't mean that the tyre is fully run-in because the tyre also needs to fully seat itself on the rim - a process not completed simply by the fitting of the tyre. The seating of the tyre's bead on the rim is separate to the scrubbing-in process. It takes longer and this is one of the reasons tyre manufacturers state that new tyres should be run-in for 100 miles.

After 100 miles have been completed the tyres should be left to cool for at least one hour and the inflation pressures checked for any leaks that may have occurred during the running-in period.

Because water acts as a lubricant, in the wet the scrubbing-in process can take two or three times as long. This is not helped by the fact that road riders rarely lean more than 28-30 degrees in the wet, meaning that the tyre will not be scrubbed-in from edge to edge. As you would anyway in the rain, extra caution with acceleration, braking and cornering should be taken. Leave the scrubbing in of the tyre's edges until the roads have dried out.

Heat cycles
A tyre's heat cycle refers to the process of heating a cold tyre up and letting it cool back down again. Cold to hot to cold again equals one heat cycle.

Heat cycles appear to be a hot topic (sorry) at the moment, but for road riders on road tyres there is no reason to be concerned about heat cycles reducing a tyre's life or performance.

Road tyres, even those designed for occasional track day use have many, many heat cycles designed into them. After all, why would tyre manufacturers design a road tyre that exceeds its designed number of heat cycles when only half worn? Word would soon circulate that a certain tyre's performance degrades rapidly before it has worn out and that tyre's sales would plummet.

However, there are tyres that don't have loads of heat cycles designed into them.

Race tyres are designed to be used once - one heat cycle. If that surprises you it really shouldn't. Nobody said racing was compulsory and nobody said racing was cheap and race tyres are designed to give maximum performance for one race. A little like a crash helmet, where, when it's done it's job of saving your life you throw it away, a race tyre has given its all in the race and its performance will now reduce the more you use it.

The reality is that race tyres will give pretty good performance for another one or two more races, but after this they really are junk.

Ever wonder why tyre manufacturers advise riders not to buy second-hand race tyres? It's not a global ploy to get you to buy new tyres. It genuinely is because the tyre's performance will be reduced. After all, ask yourself why would a racer be selling a perfectly good tyre?

I hope that helps.

All the best

Bryn Phillips
Product Support Manager, Motorcycle
Dunlop Tyres UK Ltd

From Bridgestone

Release Agent.

The release agent is something that is in the actual mould and is used to allow the removal of the tyre from the mould itself. If you were to bake a cake without some kind of grease or lubrication, a part of the cake would remain in the baking tray, the same can be said for tyres. However, this also depends on the quality of the moulds in question. The higher the quality of the mould, the less release agent is required. Some tyre manufacturers' tyres do have a release agent in them. Bridgestone, however, use very high quality moulds so our tyres do not have a release agent in them at all.

New Tyre Grip.

There is grip with a new tyre, albeit far less than a scrubbed in tyre…the best way to scrub a tyre in is to ensure every time you lean the bike over, there is half already scrubbed and half new - so small increments of lean angle at a time.

You also need to ensure heavy braking is avoided along with hard acceleration until the whole of the tyres are scrubbed from side to side.

Abrasive Material.

You can use an "abrasive material" to a certain degree but, running tyres in is not just scrubbing in the compound. Because the tyre is new you have to give the components on the tyre time to settle into one another. For example, if you loaded a van full of boxes and forced the last box in and it was touching the roof and then proceeded to drive down the road for a while, when you checked the boxes you will find they have settled down and that last box you forced in will now come out very easily as the boxes have settled down. It is the same with tyres, the plies and belts have to settle down too. As the tyres are fitted with a slippery paste the tyre could move on the rim if the rider was to brake or accelerate heavily. You should therefore take the bike back to the dealer and ask them to check:

1). The balance of the wheel / tyre assembly to ensure there has been, or not been, any tyre slippage on the rim.

2). Check to see if the tyre is still seated correctly on the rim.

You should do this after 150 to 200 miles or so.

Scrubbing in, in the wet.

You can still scrub a tyre in, in the wet but this will not be as efficient as scrubbing them in, in the dry. If it is wet when you pick your bike up from the dealer then just me more careful and ride to the conditions. You can also stop every now and then to have a look at the tyres to see how well they're scrubbed in.

Heat Cycles.

Heat cycles are more common with race compound tyres as they're designed to operate for a race, maybe 2. When a tyre is produced is goes into an oven. The length of time and the heat of the "oven" determines the softness / hardness of the compound. Again, the longer you leave a cake in the oven, the harder it will be when it comes out - same with tyres. So, every time you heat a tyre, let it go cold and then reheat it, the harder the compound will become. However, road tyres and their compounds are designed to operate through many many hundreds of heat cycles and during it's life on the bike is unlikely to suffer from any degradation in performance from a compound point of view. The only time you're likely to experience this is if you use race tyres on the road.

I trust this answers your question and thank you for contacting Bridgestone.