

Carbon Strip in Silica Treads

Many of the tasks a tyre is expected to perform are well known. These include steering, transmitting drive and braking forces to the ground and providing a certain cushioning comfort. They must, however, also help to conduct away the electrostatic charges which result mainly from wind friction as air passes over the vehicle body. The Wdk1 guideline 110 describes the requirements for tyres with regard to electrostatic resistance.

If the tread is made of a carbon black compound, the tyre is capable of conducting electrostatic charges. This is because carbon black itself is a good conductor of electricity. In the case of certain tread compounds, silica partially replaces carbon black as filler (up to 90%). The conductivity of silica, which is extracted from quartz sand and then chemically treated, is not as good. The advantages of silica compounds – as regards wet handling, rolling resistance and winter properties – are otherwise much appreciated. A different way must therefore be found to improve electrostatic conductivity.

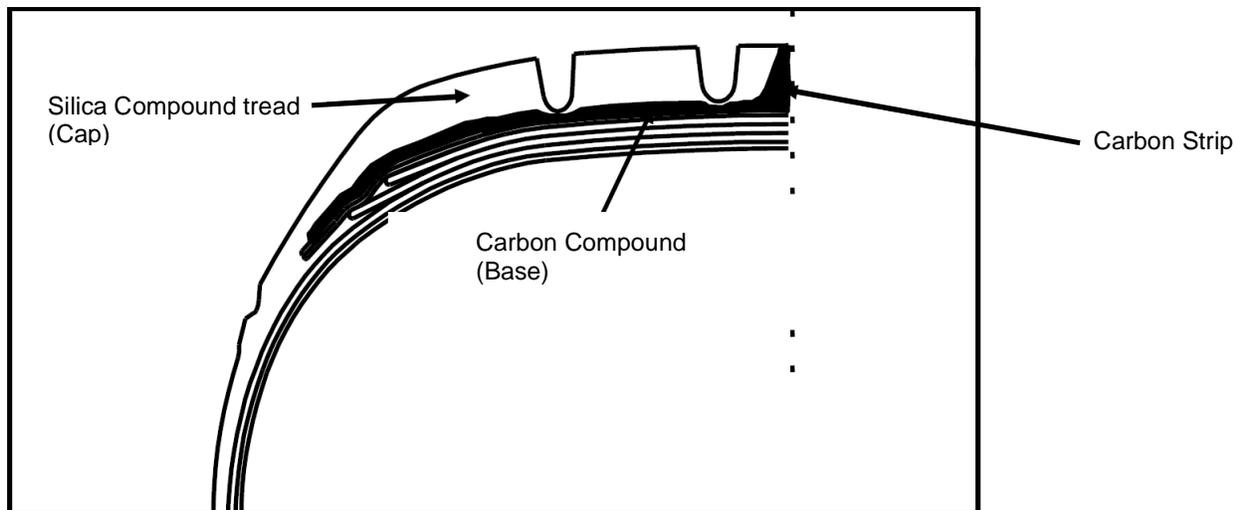


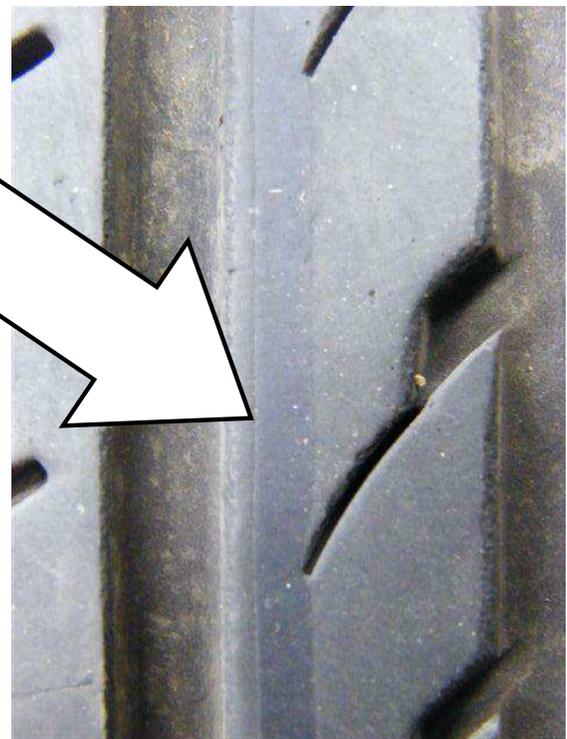
Figure 1

The carbon center beam (or strip) can be recognized as a circumferential strip on the surface of the tread pattern, approx. 2 – 4 mm wide. Normally it can be seen on the larger tread pattern blocks and is recognizable due to the texture and shade difference of the two tread compounds. (figure 2).

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Figure 2



1 WdK = Trade Association of the German Rubber Industry