



Standard Terminology Relating to the Characteristics and Performance of Tires¹

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1. Scope

1.1 This terminology primarily covers definitions for technical terms that occur in ASTM Committee F09 standards on the characteristics and performance of tires.

1.2 Definitions for terms that may also be used in other technologies, such as vehicle behavior, are worded to cover both areas.

1.3 When any definition in this terminology (that does not have the limiting phrase) is quoted out of context, editorially insert the limiting phrase *in a tire* after the dash following the term. This will properly limit the field of application of the term and definition.

2. Terminology

2.1 Definitions:

accelerometer, *n*—an instrument that senses inertial reaction to measure linear or angular acceleration. **F 811**

accuracy, *n*—a measurement concept that describes the degree of correspondence between an average measured value and an accepted reference or standard value for the object, material or phenomenon under test. **F 1082**

aligning stiffness [FL/γ], *n*—of a tire, the rate of change of tire aligning torque with respect to change in tire slip angle, usually evaluated at zero slip angle.

aligning stiffness coefficient, *n*—of a tire, the ratio of tire aligning stiffness to the tire normal force.

aligning torque [FL], *n*—of a tire, the component of a tire moment vector tending to rotate a tire about the Z' -axis, positive clockwise when looking in the positive direction of the Z' -axis. **F 403, F 424**

alignment, *n*—the adjustment of various parts of the vehicle's suspension system to ensure proper handling stability and to minimize abnormal tire treadwear. **F 1922**

analysis, *n*—an act of inspecting the S/H image and associating this image with a known calibration reference. **F 1364**

anomaly, *n*—a change in the strain pattern of the rubber surface of a straining block as a result of applied stress brought about through a change in atmospheric pressure on

the rubber surface. **F 1364**

anti-lock braking system (ABS), *n*—a collection of sensing and control hardware installed on a vehicle to prevent wheel lock-up during brake application. **F 1649**

average tire tread depth [L], *n*—the average of all tire groove (void) depth measurements. **F 1016**

axle efficiency [nd], *n*—in a vehicle, the ratio of the sum of the wheel torques at the driven wheels to the product of driveshaft torque and axle ratio.

balancing, *n*—a process to correct for heavy or light areas of a tire and wheel assembly. **F 1922**

bandwidth [$1/T$], *n*—the range of frequencies within which certain performance characteristics occur; specific limits normally apply. **F 811**

bead, *n*—of a tire, the part of a tire that comes in contact with the rim and is shaped to secure the tire to the rim. **F 1922, F 1923**

bead separation, *n*—a breakdown of bond between tire components in the bead area. **F 1922**

belt, *n*—in a tire, a breaker that substantially restricts the carcass in a circumferential direction. **F 1922, F 1923**

belt separation, *n*—a breakdown of bonding between the belts or plies or tread, or combination thereof. **F 1922**

bias, *n*—the difference between the average measured test result and the accepted reference value; it measures in an inverse manner the accuracy of a test. **F 1082**

black sidewall, *n*—a sidewall on which only black compounds comprise the outer visible surface of the tire. **F 724**

block, *n*—synonym for *element*. **F 1426**

bottom out, *v*—to deform a tire by radial load on the tread until radial movement of the inside surface is stopped by the rim or other tire inside surface. **F 414**

braking coefficient [nd], *n*—the ratio of the braking force to the normal force on a tire.

braking force [F], *n*—of a tire, the negative longitudinal force resulting from braking torque application. **F 403, F 408**

braking force coefficient, *n*—of a tire, the ratio of braking force to normal force. **F 403, F 408**

braking force coefficient, peak, *n*—of a tire, the maximum value of tire braking force coefficient that occurs prior to wheel lockup as the braking torque is progressively increased. **F 403, F 408**

braking force coefficient, slide, *n*—of a tire, the value of braking force coefficient obtained on a locked wheel.

¹ This terminology is under the jurisdiction of ASTM Committee F09 on Tires and is the direct responsibility of Subcommittee F09.94 on Terminology.

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