

Nos. 109 and 119 strength tests will remain until the agency completes its research on road hazard impact and decides whether to initiate rulemaking to adopt a new or revised test.

The final rule also retains the current FMVSS No. 109 bead unseating test and extends it to LT tires. Industry has previously recommended to the agency that the current bead unseating test be deleted from the standard because radial tires are easily able to satisfy the test. Results from the agency's 1997–1998 and 2001 rollover testing, however, provided a strong rationale for upgrading, rather than deleting, the bead unseating requirement in FMVSS No. 109. The agency proposed a new bead unseating test that is based on a test currently used by Toyota, which uses test forces more stringent than those in current FMVSS No. 109 and appeared more applicable to radial tires. Agency testing data and comments, however, called into question whether the Toyota test provides both a more stringent and more real world test than the FMVSS No. 109 bead unseating test. The FMVSS No. 109 bead unseating test will remain in the standard until the agency completes its research on bead unseating and decides whether to initiate rulemaking to adopt a new or revised test.

At this time, the agency is not adopting a test to address the deterioration of tire performance caused by aging. The proposal set forth three alternatives for an aging effects test: the adhesion (peel) test, Michelin's long-term durability endurance test, and oven aging. All seek to expose tires to conditions that cause the type of failures experienced by consumers at 40,000 kilometers or beyond. Because the agency had little data and analysis on either of these tests and understood the tire industry to conduct testing related to the effects of aging on a regular basis, it requested comments on which test would be appropriate for inclusion in the new standard. The tire industry did not, however, include this testing data and analysis in its comments on the NPRM. Further, the agency was unable, in the time period allotted by the TREAD Act, to perform comprehensive testing and analysis of the proposed aging tests and any other alternative tests and parameters. Recently, however, some industry members have begun a dialogue and offered to share data with the agency.

The agency is commencing its own research on tire aging, building on information and data provided by Ford. The agency anticipates publishing a NPRM proposing an aging test, to be

included in FMVSS No. 139, in approximately two years.

The final rule also revises FMVSS No. 110 to define Vehicle Normal Load as “no greater than 94% of tire load rating at vehicle placard pressure.” FMVSS Nos. 110 and 120 are revised to reflect the applicability of the new standard.

Lastly, the final rule establishes June 1, 2007 as the effective date for all requirements contained herein, for all covered tires and vehicles.

As documented here and in the FRE, the upgraded requirements in the standard specify more stringent and real world, yet practicable, tests that will provide a higher level of operation safety and performance for tires on today's light vehicles.

B. Summary of Key Differences Between NPRM and Final Rule

The major changes to the standard (or deviations from the proposal) are as follows:

(1) *Endurance test.* The agency is reducing the duration of the endurance test from 40 hours to 34 hours, but extending the final load step from 22 to 24 hours. The agency is also reducing the load percentages from 90/100/110% to 85/90/100%.

(2) *Low pressure performance test.* The agency is adopting the first alternative (endurance) of the low pressure performance tests.

(3) *Bead unseating test.* The agency is retaining the FMVSS No. 109 bead unseating test for P-metric tires and extending that test to LT tires.

(4) *Strength test.* The agency is retaining the FMVSS No. 109 strength test for P-metric tires and the FMVSS No. 119 strength test for LT tires.

(5) *Aging effects performance test.* The agency is deferring adoption of an aging effects performance test until it completes its research and issues a new proposal.

(6) *Bias ply tires.* The agency is excluding bias ply tires from FMVSS No. 139. Bias ply tires will remain subject to FMVSS No. 109.

(7) *Vehicle normal load.* The vehicle normal load is defined as “no greater than 94% of tire load rating at vehicle placard pressure.”

(8) *Ambient temperature.* The agency is reducing the ambient temperature in the high speed, endurance, and low pressure performance tests from 40° C to 38° C.

(9) *Effective dates/implementation.* The agency is providing a 4-year lead time for both tire and vehicle requirements. All covered tires and vehicles must comply with the final rule by June 1, 2007.

C. Performance Requirements

1. High Speed Test

The agency is adopting a high speed test for FMVSS No. 139 to be conducted using the following five parameters:

- (1) Ambient Temperature: 38° C.
- (2) Load: 85 percent.
- (3) Inflation Pressure: 220 kPa (32 psi) for standard load p-metric; 260 kPa (38 psi) for extra load p-metric; 320 kPa (46 psi), 410 kPa (60 psi), 500 kPa (73 psi) for LT load ranges C, D, E, respectively.
- (4) Speed: 140, 150, 160 km/h
- (5) Duration: 90 minutes total—30 minutes for each speed.

A tire is deemed to comply with the requirements if, at the end of the high speed test, there is no visual evidence of tread, sidewall, ply, cord, inner liner, or bead separation, chunking, broken cords, cracking, or open splices, and the tire pressure is not less than the initial test pressure. FMVSS No. 109 currently requires a “visual evidence” requirement. “Visual evidence” means visible to the unaided eye.

The agency is adopting a high-speed test with three pre-selected speeds. This testing methodology is different from that in two alternatives that the agency initially considered: (1) GTS–2000, and (2) a high speed test using identical parameters to those proposed above, except that the test speeds are based on the rated speed of the tire (initial test speed (ITS),²⁵ ITS + 10, ITS + 20, ITS + 30) for durations of 20 minutes at each speed step with a 10-minute warm-up from 0 km/h—ITS.

The methodology suggested by the tire industry in GTS–2000 for tire harmonization and the second alternative determines the test speed based on the tire's rated speed.

Historically, the agency has established the same minimum performance requirements for similar items of motor vehicle equipment. We see no compelling reason for a departure in this case. Our normal practice assures the public of minimum safe performance, regardless of the type of tire purchased.

The agency's test, based on pre-selected test speeds and independent of

²⁵ The initial test speed (ITS) in GTS–2000 is the rated speed of the tire minus 40 km/h. The test is conducted at the following speed steps: ITS, ITS+10 km/h, ITS+20 km/h, and ITS+30 km/h. The final speed step, ITS+30 km/h, is 10 km/h below the rated speed of the tire. The ITS in the second alternative is the rated speed of the tire minus 30 km/h. The test is conducted at the following speed steps: ITS, ITS+10 km/h, ITS+20 km/h, and ITS+30 km/h, with the final speed step being identical to the rate speed of the tire. Therefore, under both alternatives, each tire with a different speed rating is tested at different speeds during the high speed test.