

the rated speed of the tire, establishes the same minimum requirement for all tires, regardless of the designed level of performance. We believe that such a

methodology is equitable for all tire manufacturers and does not impose higher safety requirements on a tire with a higher level of performance.

The following table provides a comparison of the high speed parameters used in FMVSS No. 109, GTS-2000, and FMVSS No. 139.<sup>26</sup>

TABLE 2.—HIGH SPEED TEST COMPARISON

Test parameters	FMVSS No. 109	GTS-2000	FMVSS No. 139 (As proposed)	FMVSS No. 139 (As adopted)
Ambient (°C) .....	38 .....	25 .....	40 .....	38
Load (%) .....	88 .....	80 .....	85 .....	85
Inflation Pressure (kPa):				
Standard load P-metric .....	220 .....	.....	220 .....	220
Extra load P-metric .....	260 .....	.....	260 .....	260
LT load range C/D/E .....	.....	.....	320/410/500 .....	320/410/500
Speed Rating (Std/Extra):				
L,M,N .....	.....	240/280 .....	.....	.....
P,Q,R,S .....	.....	260/300 .....	220 .....	220
T,U,H .....	.....	280/320 .....	220 .....	220
V .....	.....	300/340 .....	220 .....	220
W,Y .....	.....	320/360 .....	220 .....	220
ZR .....	.....	320 .....	220 .....	220
Test speed* (km/h) .....	75, 80, 85 mph .....	ITS, +10, +20, +30	140, 150, 160 .....	140, 150, 160
Duration (mins) .....	90 (30, 30, 30) .....	50 (10, 10, 10, 20)	90 (30, 30, 30) .....	90 (30, 30, 30)

\*ITS is defined as the tire's rated speed minus 40 km/h.

#### a. Ambient Temperature

RMA, ETRTO, GRRF, and JATMA argued that the proposed temperature increase from 38° C to 40° C would create considerable complexity for the industry since most other testing is conducted at 38° C and suggested retaining 38° C as the ambient temperature for all tests. Consumer group commenters supported the agency's modification of the temperature parameter, stating that it better simulates real world conditions.

The agency has decided to adopt an ambient temperature of 38° C for the final rule instead of the ambient temperature of 40° C proposed by the agency. The agency was persuaded by the RMA DOE test data, which indicate that a 2° C increase in temperature to 40° C results in only a 2° C increase in tire (measured at the belt edge) temperature measured during the test. Therefore, the increase in test stringency based on the proposed 40° C, as compared with 38° C, is negligible. The agency also acknowledges that the 2° C increase would add significant costs to tire testing because of the need for recalibration of temperature in testing labs for testing to this particular standard. As noted by commenters, all other foreign and voluntary standards organization standards utilize an ambient temperature of 38° C. The agency concurs with commenters that the little, if any, increase in stringency a 2° C does not justify the anticipated

costs resulting from the proposed 2° C increase.

#### b. Load

Few commenters commented on this parameter. Ford recommended a high speed test load of 105%. GRRF stated that the load percentage used for testing should take into account the curvature of the test drum.

The load specified for the high-speed test is 85% of sidewall maximum load rating. Although this figure represents a slight decrease from the specification in FMVSS No. 109, test data from the agency's testing and from RMA's testing indicate that tire failure is more sensitive to speed and inflation pressure than to loading variations in the 80 to 90 percent range. A speed increase from 75, 80 and 85 mph to speeds of 160 km/h (99 mph) and higher more than offsets the small decrease in test load specification and results in a more stringent test. In Phase I of the agency's testing, 5 of 9 P-metric tires failed at 90 percent load and 2 of 9 failed at 80 percent load. Phase II of the testing included testing of 8 P-metric, 5 samples each, at 80 and 85 percent loads, and with all other test parameters remaining constant (inflation pressure—220 kPa, 20-minute steps, speeds ITS to ITS + 30 km/h). These tests demonstrated that fewer tire failures occurred at 85% load than at 80% load.<sup>27</sup> At 85% load, 5 of 8 tire brands had no tire failures in their 5 samples and the other three brands had at least

one failure in the five samples. One brand experienced failures in all 5 samples tested to the high speed test. Four brands of LT tires were also tested and all samples for each of the brands completed the high speed test at 85% load without any failures. This testing indicates that small increases in tire load have less of an impact on the interval between beginning the test and tire failure as compared with changes in inflation pressure and test speed.

In addition, the requirement for a tire reserve under normal loading conditions currently applies only to passenger cars. This final rule requires light trucks for the first time to have a specified tire reserve under normal loading conditions. Light trucks will have to provide the same 6 percent reserve or vehicle normal load on the tire required for passenger cars which is defined as "no greater than 94% of tire load rating at vehicle placard pressure."

Ford's recommendation to increase the load percentage to 105 percent of the maximum rated load for the tire is too stringent for the loading condition. Ford did not provide any data or test results to support its recommendation.

#### c. Inflation Pressure

RMA suggested that the agency base the test inflation pressure on the rated speed of the tire. Tires rated P, Q, R, and S would be tested at 260 kPa; tires rated T, U, H would be tested at 280 kPa; tires rated V would be tested at 300 kPa; and tires rated W, Y, and Z would be tested

<sup>26</sup> FMVSS No. 119 does not currently include a high speed test for LT tires with a rim diameter above 14.5 inches.

<sup>27</sup> A small number of tires were tested. However, this small sample included many brands and

included high performers and low performers. This contributed to the variation of outcome.