

sufficient safety margin for tires used on light vehicles.

In response to comments from the tire and vehicle industries arguing that the compliance costs were underestimated in the NPRM and in recognition of the limited quantifiable safety benefits, NHTSA has reduced the stringency of some of its proposals and deferred others, to ensure that this rule's safety improvements will be reasonably related to the rule's costs.

#### *C. Adopted Aspects of the NPRM*

**High speed and endurance**—The agency is upgrading the existing high speed and endurance tests, although to a more modest degree than we proposed. Both the high speed test and the endurance test contain testing parameters (ambient temperature, load, inflation pressure, speed, and duration) that make the tests more stringent than those tests currently found in our tire standards, as well as the tests suggested by industry. Most significantly, the high speed test specifies test speeds of 140, 150, and 160 km/h substantially higher than those specified in the passenger car tire standard. Likewise, the endurance test specifies a test speed 50% higher than that currently specified in the car tire standard. Under the new endurance test, a tire is assessed over 50% more distance than a tire must endure under the current endurance test.

**Low inflation pressure performance**—The agency is adopting a low inflation pressure test that seeks to ensure a minimum level of performance safety in tires when they are underinflated to 140 kPa (20 psi). That is the minimum level of inflation at which tire pressure monitoring system warnings will be required to be activated. This requirement mirrors conditions of long distance family travel and will assist in ensuring that tires will withstand conditions of severe underinflation during highway travel in fully loaded conditions.

**Applicability and LTVs**—Given the increasing consumer preference for using light trucks for personal transportation purposes, NHTSA is, for the first time, requiring light trucks to have a specified tire reserve, the same as for passenger cars, under normal loading conditions. The agency is also extending the tire performance requirements for passenger car tires to LT tires (load range C, D, and E) used on light trucks.

#### *D. Deferred Aspects of the NPRM*

**Road hazard impact**—Instead of replacing the current strength test with the proposed road hazard test, the agency is retaining the strength test for

passenger car and LT tires. Post-NPRM agency testing data and public comments called into question whether the proposed road hazard impact test, which was modeled after a SAE recommended practice, would provide both a more stringent and more real-world test than the current test. The agency will address these uncertainties in the near future. After it conducts research on tire aging and resistance to bead unseating, it will conduct research on road hazard impact. Based on the test results, it will decide whether to initiate rulemaking to adopt a new or revised test.

**Resistance to bead unseating**—Instead of replacing the current bead unseating test with a proposal based on a Toyota test, the agency is retaining the bead unseating test and extending it to LT tires. Industry previously recommended dispensing with a bead unseating test because radial tires are easily able to satisfy the current one. Results from the agency's 1997–1998 rollover testing provided a strong rationale for upgrading, rather than deleting, the bead unseating test. Post-NPRM agency testing data and public 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 agency will conduct research on bead unseating after conducting its research on tire aging, and, based on the test results, decide whether to initiate rulemaking to adopt a new or revised test.

**Aging**—At this time, the agency is not adopting a test to address the deterioration of tire performance caused by aging. We proposed three alternatives for an aging effects test that would expose tires to the type of failures experienced by consumers at 40,000 kilometers or beyond. Because we had little data and analysis regarding any of these tests and understood the tire industry to be regularly conducting aging testing, we requested comments on which alternative should be adopted. The tire industry did not, however, disclose any of its testing data or provide any analysis in its comments on the NPRM. However, some industry members have recently begun a dialogue and offered to share data with the agency.

In an attempt to gain a thorough understanding of existing aging test mechanisms and methodologies, as well as data and analysis relating to that testing, the agency is commencing its own research on aging. The agency anticipates publishing a NPRM proposing an aging test in

approximately two years after this final rule.

#### *Benefits*

At the time of the NPRM, we were able to quantify only very slight safety benefits. Given the reductions in several of our proposals and the deferral of several of other proposals, the benefits of the final rule will be less than we then projected. We now estimate 1 to 4 lives saved and 23 to 102 injuries reduced. Nevertheless, the final rule will increase the required level of performance for all tires and will improve the strength, endurance, and heat resistance of the 5–11% of tires that will have to be redesigned or modified to achieve compliance.

#### *Costs*

Although in issuing the proposal we were able to estimate costs for only two of the proposed tests, we estimated that those two tests alone would result in costs of almost \$300 million per year. However, given the reductions in or deferrals of some of our proposals, we estimate that the final rule will, in its entirety, result in annual costs for new original equipment and replacement tires of \$3.6 million to \$31.6 million. The net costs per equivalent life saved will be about \$5 million based on the mid-point of cost and discounted benefits estimates.

#### *Effective Dates/Implementation*

The agency is providing a 4-year lead time for both tire and vehicle manufacturers. All covered tires and vehicles must comply with the amendments by June 1, 2007. In view of the comments by the tire and vehicle industry regarding the extent and significance of design and production changes that might have to be made as a result of changing requirements in an area that has been not substantively revised in 30 years, NHTSA finds that an effective date of June 1, 2007 is more reasonable than the shorter lead time proposed in the NPRM and is in the public interest.

## **II. Background**

### *A. The Transportation Recall Enhancement Accountability and Documentation Act*

Section 10, "Endurance and Resistance Standards for Tires," of the TREAD Act, Pub. L. 106–414, mandates that the agency issue a final rule to revise and update its tire performance standards. However, the Act gives the agency substantial discretion regarding the substance of the final rule. The Act does not specify how the standards should be revised or updated. For