

this part, thereby making the technology available to all car owners and railroads, while maintaining the same level of safety originally contemplated. FRA believes this proposed procedure will speed the process for taking advantage of new technologies over that which is currently available through the waiver process. However, in order to provide an opportunity for all interested parties to provide input for use by FRA in its decision making process, as required by the Administrative Procedure Act, 5 U.S.C. 553 *et seq.*, (APA), FRA believes that any special approval provision must, at a minimum, provide proper notice to the public of any significant change or action being considered by the agency with regard to the existing regulations.

Paragraph (b) sets forth the substantive and procedural requirements for petitions for special approval of alternative standards. For example, paragraph (b) states that each petition must contain (1) relevant identification and contact information of the primary person to be contacted with regard to the petition, (2) a detailed description of the alternative proposed, and (3) sufficient data and analysis establishing that the alternative will provide at least an equivalent level of safety and meet the requirements of § 224.103(e). Paragraphs (c) and (d) provide opportunity for notice and public comment on any petition for special approval of an alternative standard received by FRA, and paragraph (e) describes the process FRA will follow in acting on any such petitions.

Subpart B—Application, Inspection, and Maintenance of Retroreflective Material

Section 224.101 General Requirements

This section contains the general requirement that all rail freight rolling stock subject to this part be equipped with retroreflective sheeting conforming to the requirements of this rule and that the sheeting be applied, inspected, and maintained in accordance with subpart B or in accordance with an alternative standard approved under § 224.15. This general requirement reflects FRA's understanding that motorists need to be given as much visual information as possible to correctly decide whether a roadway hazard (e.g., a train) exists in a vehicle's path. Specifically, devices intended to make a train conspicuous should: (1) Tell the motorist that something is there, (2) tell the motorist that what he or she sees is a train, (3) tell the motorist if the train is on or about to cross a road in the vehicle's

path, (4) aid the motorist in estimating the distance he or she is from the train, and (5) aid the motorist in estimating the speed and direction of the train's motion. FRA believes that the retroreflective sheeting contemplated in this subpart B, applied and inspected in conformance with this part, effectively achieves these objectives.

Section 224.103 Characteristics of Retroreflective Sheeting

This section sets forth the proposed construction, color, and performance standards for the retroreflective sheeting required by § 224.101. Paragraph (a) states that retroreflective sheeting must be constructed of a smooth, flat, transparent exterior film with microprismatic elements embedded or suspended beneath the film so as to form a non-exposed retroreflective optical system. Paragraph (a) also provides that air encapsulated sheeting must be sealed around all edges. FRA understands that air encapsulated sheeting that is not sealed on all edges will allow water to seep between the layers of the product. Over time, due to the normal railroad operating environment, this water will freeze and expand, causing layers of the sheeting to peel.

Paragraphs (b) and (c) propose to require that the retroreflective sheeting meet the color and performance requirements, except for the photometric requirements, of the American Society of Testing and Measurements' (ASTM) standard D 4956–01, *Standard Specification for Retroreflective Sheeting for Traffic Control*. ASTM D 4956–01 has been chosen as the basis for the FRA specification because FRA understands it to be the specification that manufacturers of retroreflective sheeting are following in their current manufacturing process. NHTSA's rule requiring reflectorization of large truck trailers (49 CFR 571.108) is also based on this ASTM standard. Information provided by several retroreflective sheeting manufacturers indicates that the products of most manufacturers currently meet the performance requirements of this proposed rule, and FRA has no reason to believe that other manufacturers could not meet the performance standards if there was a market for the product. In addition, because FRA is requiring that retroreflective sheeting meet the requirements of ASTM D 4956–01 only as initially applied and does not propose to require specific minimum reflectivity for vehicles in service, FRA believes that highly durable sheeting meeting the performance tests of the

ASTM standard is required. It is less costly to install durable material than it would be to install less durable material but be required to regularly test its performance relative to a performance standard.

Specifically, paragraph (b) requires that the retroreflective sheeting be yellow as specified by the chromaticity coordinates of ASTM D 4956–01. As explained above, the human eye is more sensitive to some colors than others. This color sensitivity can vary in different lighting situations, making some colors more noticeable at different times of the day. Although the 1999 Volpe Report concluded that a pattern of red-and-white reflectors was preferred to facilitate motorists' recognition of a hazard as a train and convey a sense of danger, FRA proposes to require yellow retroreflective material as specified by the chromaticity coordinates of ASTM D 4956–01. FRA proposes to require yellow retroreflective material because the spectral measurement of the color (approximately 550 nm) is within the peak sensitivity range of the human visual system and accordingly, it is one of the most easily detectable colors under varying ambient light and other environmental conditions (e.g., darkness, fog, haze, etc.). In addition, the color yellow minimizes the risk of motorist confusion with the colors of other roadway hazards (e.g., red and white reflectors on trucks) and is not a color prevalent in most background environments.

In comments submitted to the docket, 3M, a manufacturer of retroreflective materials, recommended the use of a high contrast colored corner cube retroreflective material with a spectral measurement within the peak sensitivity range of the human visual system (e.g., yellow/green) and fluorescent properties. 3M explained that the efficient corner cube retroreflective material would aid nighttime visibility and the fluorescent properties would provide additional daytime luminance. Although FRA's own research found that fluorescent yellow retroreflective material had the highest SIA value of all materials tested and could be detected from a further distance than any of the other materials, because the duration of fluorescent pigments is substantially less than the ten-year reflector product guarantee, FRA is not proposing to require the use of fluorescent-colored retroreflective material at this time. However, if a fluorescent retroreflective material meets all of the requirements of this part, its use is acceptable.

Paragraph (c) requires that retroreflective sheeting applied in