

## Chapter 14

# ***Reflectorization of Rail Freight Rolling Stock Part 224***

### **Introduction:**

The Federal Railroad Administration published the final rule for *Reflectorization of Rail Freight Rolling Stock*, 49 CFR Part 224 on October 28, 2005.

The effective date of the rule as published in the *Federal Register*, Vol. 70, No. 208, is November 28, 2005. The purpose of the rule is to require the application of retroreflective tape material to the sides of freight rolling stock, (freight cars and locomotives) to enhance the visibility of trains during times of limited visibility.

Years of research and public involvement have been devoted to the issue of making trains more visible at road crossings especially when visibility is limited due to weather or night time conditions. The rule addresses the need for the reflectorization of rail equipment as well as a description of FRA's research and public outreach efforts aimed at identifying the most effective method for implementing a nationwide reflectorization program.

The rule provides car owners up to ten (10) years (see §224.107, Table 3, for implementation dates) in which to apply retroreflective material to their equipment and locomotive owners five (5) years in which to equip their locomotives. The rule provides guidelines for the characteristics of the material, dimensions and quantity to be applied as well as locations for consistent application.

### **Guidance:**

#### **When is retro reflective sheeting required to be applied to newly constructed freight cars?**

Paragraph (a)(1) of §224.107 requires that retro reflective sheeting be applied to newly manufactured rail cars at the time of the cars' construction.

#### **When is retro reflective sheeting required to be applied to existing cars without retro reflective sheeting?**

Paragraph 224.107 (a)(2)(i) requires that retro reflective sheeting be applied to existing unreflectorized freight cars when either (1) the car is repainted or rebuilt, or (2) within 9 months after the car first undergoes a single car air brake test, as prescribed by 49 CFR 232.305, whichever occurs first.

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### **How much retro reflective material is required to be placed on each car or locomotive side?**

Sheeting Dimensions and Quantity, §224.105, states that the amount of retro reflective sheeting to be applied to each car or locomotive subject to this part is dependent on the length of the car or locomotive and the color of the sheeting. (Table 2 of Subpart B. Gives The Minimum Quantity Requirement For Retro reflective Sheeting On Freight Rolling Stock.)

### **Where can the retro reflective sheeting be applied?**

Location of retro reflective sheeting, §224.106, states the sheeting shall be applied along the length of each railroad freight car or locomotive side in the manner provided by a uniform industry standard as close as practicable to 42 inches above the top of rail. (Typical application diagrams are included in the rule as a guideline for general applications)

### **What size of retro reflective sheeting is acceptable?**

The preferred size specified in §224.106 is 4x18 inch or 4x36 inch strips, in a vertical or horizontal pattern. (One 4x18 inch strip = ½ Sq. Ft., One 4x36 inch strip = 1 Sq. Ft.) On cars of special construction, the FRA may issue a waiver if the car or locomotive layout cannot accommodate these preferred sizes.

### **What about cars that already have retro reflective sheeting applied?**

If a car is equipped on each side with at least one square foot of retro reflective sheeting, uniformly distributed over the length of each side, that car shall be considered in compliance with this part for 10 years from the effective date of the rule. [§224.107. (D)(3)].

### **What color(s) of retro reflective sheeting are acceptable and how will we be able to determine if the product is in compliance?**

Retro reflective sheeting applied pursuant to this part shall be yellow or white as specified by the chromaticity coordinates of ASTM International's Standard D 4956-01a.<sup>1</sup> [§224.103. (b)].

The characters "FRA-224", constituting the manufacturer's certification that the retro reflective sheeting conforms to the requirements of paragraphs (a) through (c) of this section, shall appear at least once on the exposed surface of each piece of sheeting in the final application. The characters shall be a minimum of three millimeters high, and shall be permanently stamped, etched, molded, or printed within the product and each certification shall be spaced no more than four inches apart.

<sup>1</sup>The American Association of Railroads Field Manual Rule 66, 2006 Issue, specifies, "yellow only" for applications.

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### **Are both vertical and horizontal applications in compliance?**

Yes. §224.106 Location of retro reflective sheeting, General Rule (1), on railroad freight cars other than flat cars and tank cars, retro reflective sheeting shall be applied in either a vertical or horizontal pattern along the length of the car sides, with the bottom edge of the sheeting as close as practicable to 42 inches above the top of a rail. Retro reflective sheeting shall not be applied below the side sill.

### **What about spacing? How are the strips to be spaced?**

At least one 4x36 inch strip or two 4x18 inch strips, one above the other, shall be applied as close to each end of the car as practicable. Between these two vertical end strips, a minimum of one 4x18 inch strip shall be applied at least every 12 feet.

### **How do I submit a Compliance Report to the FRA?**

A Compliance Report may be submitted electronically or by filing a paper copy of completed Form FRA F6180.113 (found in Appendix B to 49 CFR Part 224) with the following:

Creative Information Technology, Incorporated (CITI)  
4601 North Fairfax Drive, Suite 1100  
Arlington, VA 22203  
703-548-3313 Extension 223  
POC: Angelica Mamani