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SUMMARY OF THE INVENTION

I have discovered that railroad brake shoes that meet A A R (Association of American Railroads) standards for brake shoes can be made from compositions having a low, non-asbestos fiber content which includes synthetic fiber. The friction materials according to this invention comprise, by weight, 0.5-11.0% non-asbestos fiber, including at least 0.5% synthetic fiber, 66-81% filler and 14-21% organic binder. A preferred embodiment of this composition friction material for railroad car use contains 2.7-3.5% synthetic fiber, 74-82% filler and 16-19% organic binder.

DETAILED DESCRIPTION OF THE INVENTION

The criterion for suitability of a composition friction material for railroad car brake shoe use is the ability of the friction material to pass the standards set forth in the A A R Specification M-926-72, Feb 13, 1973 Revision. Some of the pertinent dynamometer performance test criteria called for in this A A R Specification are as follows.

1 Instantaneous Retarding Force During 45 Minute Dynamometer Drag Test

Drag	Retarding Force
Heavy load	400 lbs min
Light load	300 lbs min

2 Static Coefficient of Friction

9 Test Average--0.38 min

3 Stop Distances From 90, 70, 50, 30, 10 mph Under Light and Heavy Brake Shoe Loads (all stop distances must be within varying tolerances)

4 Wear Loss

Drag Tests (total)--0.60 in sup 3 max

Test Stops (total per sequence)--1.20 in sup 3 max

As used herein, the term "synthetic fiber" means fiber made from a substance which does not naturally occur in a fibrous state and includes glass, polyester and kaowool. The term "synthetic fiber" excludes all forms of cellulose, which naturally occurs in a fibrous state, but which can also be processed into a different fibrous form (e.g., rayon). Some example mixes used a single type of synthetic fiber, while others used several types of synthetic fibers in combination. Other example mixes contained a mixture of synthetic and cellulose fibers. All mixes were totally free of asbestos and lead.

Organic binders, such as styrene butadiene rubber (SBR), nitrile butadiene rubber (NBR) and modified phenolic and cashew resins were used. Curing agents for the organic binders included sulfur, zinc oxide and hexamethylene tetramine.