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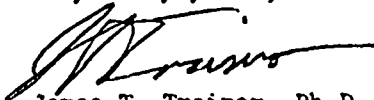
resistance cannot be overly emphasized because the material must not crush or shear off the backing plate under severe temperature and pressure conditions.

Optimizing the brake lining material for all of the above performance criteria requires careful selection of each raw material and extensive experimentation to insure that each is used in the proper amount. It should be noted that during the manufacture of brake lining, the raw materials are subjected to heat and pressure so that the binder will uniformly coat all the other ingredients. This is essential to achieve the required strength, but it also serves to encapsulate the fibers and hold them in place.

Asbestos is a major component of brake linings. The asbestos content of brake linings manufactured by Raybestos-Manhattan is about 40 to 60 weight percent. Asbestos is a high strength, heat resistant fiber with excellent processing characteristics. Unlike many other high strength, heat resistant fibers such as fiberglass, asbestos does not melt or soften at high temperatures. Rather, it stays in a solid form and is converted by heat into a non fibrous mineral particle called forsterite. We do not have to get into the chemistry of this transformation, but it is somewhat analogous to the conversion of wood fibers to charcoal. The important point is the fact that it does not melt at high temperatures because this can cause smearing and brake failure under severe service conditions. Another unique characteristic of asbestos is that its hardness is slightly less than that of cast iron used in brake drums so that it does not cause drum wear.

In conclusion, asbestos is a significant component of brake lining and no other fiber has the requisite characteristics to directly replace asbestos in this application. Finally, chrysotile is the only type of asbestos fiber used by Raybestos-Manhattan in its manufacture of brake lining materials.

Very truly yours,



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