

APPLICATION OF COMPOSITE BRAKE BLOCKS IN RAILWAY OPERATION

Frictional components in railway braking system must fulfill UIC leaflets UIC 541-3 for disc brakes and UIC 541-4 for brake block brakes [1]. The cast iron brake blocks replacement by composite brake blocks must ensure prescribed values of friction coefficient and thus prescribed braking distances at any weather conditions. Composite brake blocks especially composite organic brake blocks are worse thermal conducting material than cast iron material, so the railway wheel is more thermally stressed.

Nowadays are in railway operation normally used or tested in some braking applications composite brake blocks of type K and of type L and LL [4]. Normal practice in certification of new composite brake blocks material started with testing on some UIC approved railway brake bench, then follow brake trials and at last long time test in railway operation.

The composite brake blocks of type K, L and LL as well as cast-iron brake blocks P10 were also tested on the brake test bench of Department Transport and Handling Machines,

Faculty of Mechanical Engineering, University of Zilina, which was confirmed by UIC in the year 2000. As you can see on the figures 1 to 4, the type K has the highest friction coefficient; type LL represents substitution to cast iron brake blocks as regards to values of

friction coefficient. Type L of composite brake blocks lies in the middle of coefficients friction values of type K and LL.

[Source:](#)

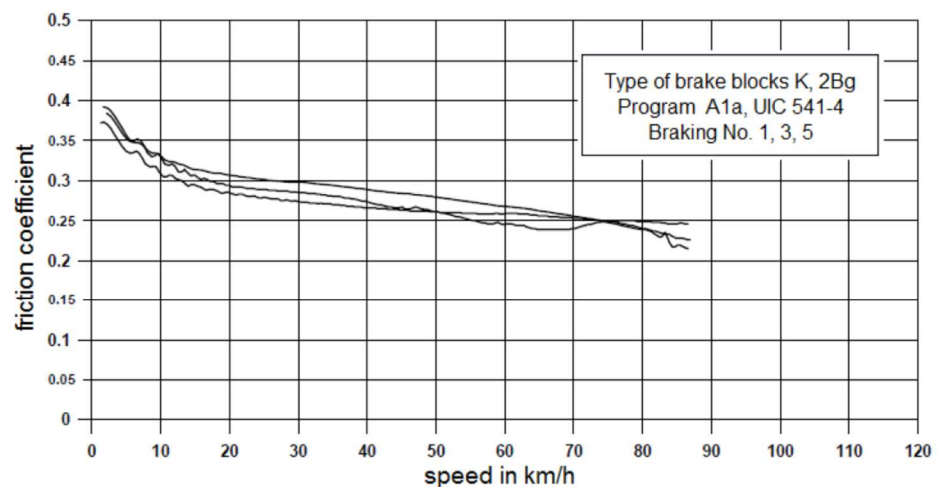


Fig. 1. Coefficient of friction of composite brake blocks type K

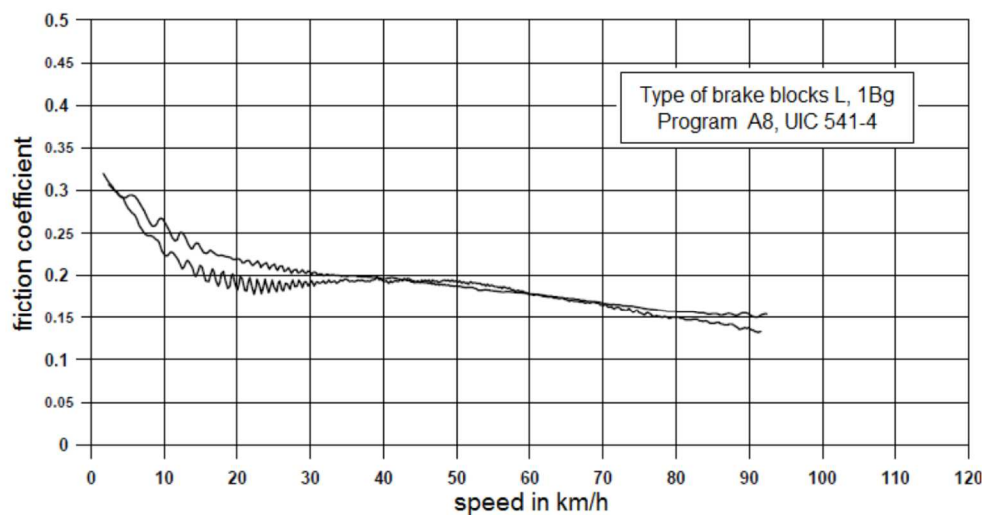


Fig. 2. Coefficient of friction of composite brake blocks type L

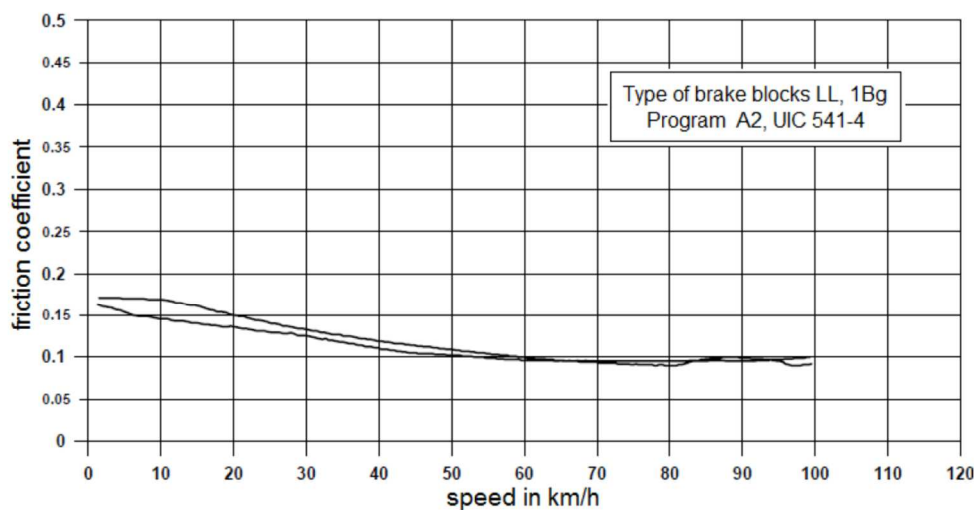


Fig. 3. Coefficient of friction of composite brake blocks type LL

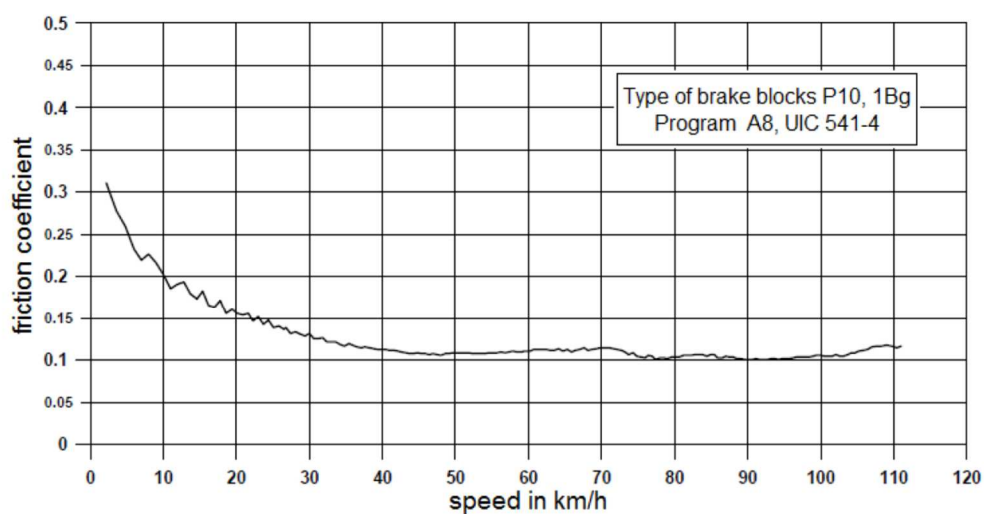


Fig. 4. Coefficient of friction of cast iron brake blocks type P10