

### **Brake performance of Cast Iron Composite Brake Blocks Containing Alumina Foams**

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Cast iron composite brake blocks, which contain silicon carbide foams in alloyed cast iron brake blocks, have been developed to improve friction coefficient and wear resistance. However, it has been clarified that the effect produced by alumina foams is similar to that of silicon carbide foams. Thereupon, the effects of silicon carbide foams and two kinds of alumina foams on friction and wear performance when used with alloyed cast iron brake blocks were examined. It is considered that the ceramic wear particles produced between the wheel tread and the brake block during braking, improved the friction coefficient. Wear of the cast iron composite brake blocks decreased because the cast iron matrix of the cast iron composite brake blocks was strengthened by inclusion of ceramic foams. It was found that silicon carbide foams in cast iron brake blocks were able to replace alumina foams because of their brake performance. Ceramic foams are therefore considered to have a cleaning effect by removing adhesive materials on the wheel tread.