

The effects of grit particle size on frictional characteristics of automotive braking system

Abstract:

The effect of grit particle size on frictional characteristics was investigated using a vertically oriented brake test rig. Silica sand of grit sizes 50-180 μm , 180-355 μm and 355-500 μm were used in drag mode application. Results showed that the presence of hard particles from environment can influence the friction response significantly. Basically, once the hard particles enter the gap, the value and amplitude of friction coefficient tend to decrease. However, slight increase in friction with smaller particles was recorded due to more hard particles involved in mixing and changing the effective contact area. Better friction stability was related to the presence of smaller grit particles and compacted wear debris to form frictional film on the braking interface.