This means that very large energy transfer takes place at these contact points and extremely high temperatures are reached.

In the case of brake linings, some evidence of these temperatures has been generated in unpublished work by the General Motors Company[4]. In this study, a small hole was cut through a brake shoe and the radiation collected from the exposed shoe surface was monitored. The results suggested that under light braking temperatures of the order of 800-900°C were found, while during heavy braking the temperature reached 1700-1800°C.

The significance of this data to the present case is that it is known that asbestos decomposes above 500°C[5] to give forsterite (Mg_2SiO_4), talc ($Mg_3Si_4O_{10}(OH)_2$) and water vapor.

Acceptance of the value of 1% of asbestos emitted allows an estimate to be made of the effect of this emission on the quality of the atmosphere.

Estimation of Urban Concentrations of Asbestos From Brakes

Assumptions

a. There are approximately 100 million* motor vehicles.

b. Motor vehicles have an approximate average weight of 4 lbs of friction material, when new, of which 50% is asbestos.

c. The average motor vehicle will require replacement of the brakes after three years of use at which time they will have lost 50% of their weight by abrasion.

d. The dust emitted will contain 1% of asbestos fibers.

e. Of the wear dust, 80% is emitted and 20% is lodged within the system.

*The AAA claims there are 109,000,000 licenced vehicles including 90,000,000 passenger vehicles and 19,000,000 trucks.