"Moreover, as with length distribution, diameter distribution varies with activity and fiber types. As a result, the fraction of fibers longer than 5 um visible by light microscopy varies from about 22 percent in chrysotile and crocidolite mining and amosite/chrysotile insulation manufacturing to 53 percent in amosite mining. Intermediate values of 40 percent are measured in chrysotile brake lining manufacturing and 33 percent in amosite mill operations. Thus, even perfect measurement of workplace air, with accurate enumeration of fibers according to currently accepted methods, would be expected to lead to different exposure-response relationships for any specific asbestos disease when different work environments are studied."

Fiber width is clinically important to carcinogenic potency. Thinner fibers (generally < .1 um), which are invisible under light microscopy and therefore uncounted, are far more mesothliogenic than wider fibers. [redacted] (Stanton et al. 1981) (Pott et al. 1972) Lippmann first noted this explanation for the "textile mystery" in 1987:

"The origin of this lower risk [for miners] is not fully understood, but part of the difference may lie in the different fiber size distributions between the mining and milling of chrysotile and its use in a textile plant or other production facility. Animal experiments.... indicate that the fibers most likely to produce cancer are too thin to be observed by a light microscope. In the mine and mill the chrysotile fiber bundles have only been partially broken apart. Many of the fibers are large and easily counted: some of those counted are curly and non-respirable. When shipped to a chrysotile textile mill the fibers are further broken apart during carding. In the high-speed spinning and weaving processes. Thin fibers may split off from the threads most of which are not visible in a light microscope. Thus in the air of a textile plant the percentage of thin, uncounted, but