

used for filters in various chemical situations. Can we use a bag? What is going to be the loss in a bag house across the face of those collectors and how many will break through or will they break through? What kind of fabric? What kind of air moving equipment will we need? What kind of ducting will we need? What kind of fans will we need? Are fibers consistent with the bearings in the fans and this sort of thing? So we have a great number of problems from an engineering point of view. If someone would get some designs along this line using fiber technology as their basis for ventilation design, I think they would be in a very fine position today to sell at least a textbook.

Substitution is the only alternative. We began the use of amosite in the United States Navy in 1934 aboard what we called then high-speed⁴ destroyers. Twelve knots was high speed in those days. Certainly hair felts didn't work around the high heats and high pressures we have today. Amosite was then later applied to our flanges and our valves. In 1937 we used pipe covering for the first time instead of hand placing on all our pipes. We used pipe covering, bought pre-molded pipe which was of two varieties: magnesium or mag pipe as we call them, magnesium oxide; the other was calcium silicate, silicate pipe. They were used with binders in approximately weight ratios of 10 percent of chrysotile and amosite. We still have some old destroyers laying in mothballs with mag pipe and amosite binders. Incidentally, in our rip-out operations, even with total substitution within two years, which is the deadline, we are going to have amosite and chrysotile aboard our destroyers and other ships for the next 20 years. We'll be ripping it out in maintenance.

DUP 0902056