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Biologic Effects of Atmospheric Pollutants

ASBESTOS

THE NEED FOR AND FEASIBILITY OF AIR POLLUTION CONTROLS

Committee on
Biologic Effects of
Atmospheric Pollutants
DIVISION OF MEDICAL SCIENCES
NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY
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into the surrounding environment unless effective air cleaning is applied to effluents. Fibers removed by ventilation and filtering devices and not reintroduced into the production process and asbestos-containing waste products of the manufacturing process ultimately are disposed of outside the plant.

USE OF PRODUCTS CONTAINING ASBESTOS

Many products, at times unknown to the user, contain asbestos of one kind or another. There are great variations among such products with respect to the chances of fiber release during the use of the product. The likelihood depends predominantly on the ease with which the fibers can be dislodged by the application of energy and on the degree to which the application of energy actually destroys the fibers during the use of the product. Almost all the asbestos fiber used in the United States for manufacturing products becomes tightly bound within the products and usually undergoes little actual abrasion or wear before being discarded. Asbestos cement products (accounting for most of the asbestos used in the United States), shingles, and floor tiles are in this category. Some asbestos-containing products, such as brakelinings, are subjected to great friction; their rate of wear is considerable, and at times they are almost completely worn away. In the case of brakelinings, the application of energy is so intense and the heat created so great that most chrysotile fibers are destroyed by being converted to another substance, which is nonfibrous.[65,68,88] Nevertheless, an appreciable percentage (1 – 3%) remains as fibrous asbestos. In some products—for example, asbestos cloth, paper, and sprayed fireproofing materials—asbestos fibers are not tightly bound or mixed with another material that holds them in place. Fiber release from these products occurs primarily during application and removal. The spray fireproofing of buildings with asbestos-containing materials is a case in point. This operation can be a serious source of emission, in that it usually occurs in densely populated areas.

Talc is mined and milled and used in greater quantities than is asbestos in the United States. Because it contains asbestos fibers, its uses will add to the total number of fibers (including nonasbestos fibers) emitted. The use of talc in dispensing pesticides over wide areas of the country and its use in cosmetics are two examples of how this material may act as a source of asbestos and other fibers.