

TECHNICAL SUPPORT DOCUMENT FOR CANCER POTENCY FACTORS

APPENDIX F

Asbestos Quantity Conversion Factors

The unit risk factor for asbestos is listed in this document in units of 100 PCM fibers/m³ [1.9 E-4 (100 PCM fibers/m³)⁻¹] and in units of µg/m³ [6.3 E-2 (µg/m³)⁻¹]. The value listed in the Toxic Air Contaminant (TAC) document for asbestos (CDHS, 1986) was 1.9 E-4 (100 PCM fibers/m³)⁻¹. However, emitted asbestos quantities reported to the various Air Quality Districts under the requirements of the Air Toxics “Hot Spots” Information and Assessment Act of 1987 (Health and Safety Code (HSC) Section 44300 et seq. and as amended by Statutes 1992, Chapter 1162) are in units of pounds/year and maximum pounds/hour. Therefore, the original TAC unit risk value has been converted using a factor of 0.003 µg asbestos = 100 asbestos fibers which has been derived from information published by US EPA (1985). The number of asbestos fibers associated with a given mass of asbestos can vary appreciably. Also, US EPA (1985) has stated that this conversion factor is the geometric mean of measured relationships between optical fiber counts and mass airborne chrysotile in several published studies, the range of the conversion factor between the different studies is large (0.0005 - 0.015 µg asbestos/100 asbestos fibers), and carries with it an appreciable uncertainty. Use of the unit risk factor listed in the asbestos TAC document [1.9 E-4 (100 PCM fibers/m³)⁻¹], wherever possible, will result in a more precise risk estimation. Additionally, the unit risk factor expressed in units of (µg/m³)⁻¹ may change if a conversion factor with less uncertainty is developed, or may be eliminated if asbestos quantity reporting requirements render use of a unit risk factor expressed in units of (µg/m³)⁻¹ unnecessary.

REFERENCES

- California Department of Health Services (CDHS) 1986. Report to the Air Resources Board on Asbestos. Part B. Health Effects of Asbestos. Epidemiological Studies Section, Berkeley, CA.
- U.S. Environmental Protection Agency (US EPA) 1986. Airborne Asbestos Health Assessment Update. EPA/600/8-84/003F, Office of Health and Environmental Assessment, Washington, DC.