Human Health Risk Assessment of Outdoor Air in Electronic Industrial Complex

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This study focuses on the human health risk assessment of airborne volatile organic compounds in the electronic industrial complex during the time periods of August and September, 2002 and January and February, 2003. This analysis of air quality was based on the US-EPA method TO-14 using GC/MSD, and the risk assessment followed the procedure and method suggested by US-EPA. Among the VOCs, dichloromethane, benzene, chloroform, 1,2-dichloroethane, and 1,2-diboromoethane were carcinogen compounds for inhalation. The estimated cancer risk associated with 8 hour exposures of the airborne ranged from 2.7×10^{-6} for best case to 2.6×10^{-5}, and average value of 1.2×10^{-5}. Noncarcinogenic risk assessment was carried out for toluene, xylene, ethylbenzene, styrene, benzene, 1,2-dichloropropane, ethylchloride, and 1,2-dibromoethane. The hazard index associated with 8 hour exposure of the airborne ranged from 0.02 to 0.06. The cancer risk and hazard index during winter season was higher than those during summer season. The estimated risk and hazard index is very low compared to standard value.