

An Effect of Room Air Cleaners on Removal of ETS Components

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This study was conducted to identify the effect of room air cleaners to remove gases, vapor and particles from closed room contaminated with ETS. Four types of room air cleaners, paper filter, activated carbon filter, electrostatic precipitator, and ionizer, were tested. The measurement covered particle sizes of 13.8 – 542.2nm, particle concentration, TSP, UVPM, FPM, solanesol, and the following gases and vapor; carbon dioxide, carbon monoxide, nicotine, and 3-ethenylpyridine. The room air cleaner was started, and the decay rates for the gases, vapor and particles concentration were measured.

When the use of room air cleaners, particle components of ETS, such as TSP, UVPM, FPM, and solanesol were effectively removed, and vapor components, nicotine and 3-ethenylpyridine were moderately removed by time elapse, but gas components, CO₂ and CO were not removed from closed room. The removal efficiency of room air cleaners, in order of highest significance, were electrostatic precipitator > ionizer > activated carbon filter > paper filter. Our results indicated that it was not easy to clean the air of ETS, and the particle concentration can be reduced rather effectively, but the gaseous component were much harder to remove.