

ABSTRACT

Due to the deterioration of air quality in recent years in line with the rapid development, this study is an initiative to provide an overview of the results of the case study and report on the trends of airborne particles distribution at residential areas in relation to distance from coal power plant in Manjung, Perak. Particulate matter from Manjung coal power plant may possibly one of the decreasing health condition factors of the residents' related to respiratory besides motor vehicles, industrial activities and other sources. An 8-hour airborne sampling by using 7-hole Sampler (for total inhalable dust) and Cyclone Sampler (for respirable dust) was conducted to measure and quantify physical characteristics of airborne particulates in the site study area both indoor and outdoor. Four sampling points (housing at Teluk Rubiah, Lumut, Sitiawan and Ayer Tawar) were determined by the radius distance 5km, 10km, 15km, 20km away respectively from the coal power plant and the direction, considering the meteorological factors. For indoor mass concentration of total inhalable dust, the trend shows that 5km and 10km sampling point recorded 0.3788 mg/m^3 and 0.2575 mg/m^3 , which exceed the standards for good indoor air quality by EPD (0.180 mg/m^3) compared to 15km (0.0663 mg/m^3) and 20km (0.1515 mg/m^3). As for outdoor mass concentration, the percentage of respirable dust towards total inhalable dust at 10km radius sampling point is the highest among the four sites with 97% (others ranging from 38% to 79%), due the other sources nearby like sea-port, ferry terminal to Pangkor, heavy traffic at tourism point and industrial activities. From the findings, it can be concluded that the level of airborne particulates distribution has association with the coal power plant. Although indoor air quality of the resident's house was influenced by the nearby coal power plant, however the house design and smoking habits also play the role, studies have shown. The outdoor particulate measurement at residential house in Manjung not only determined by the location or distance from the coal power plant, but the results also considering the meteorological factors and other sources around the sampling point.