Measurement of Major Ambient Air Pollutants in Sindh Industrial Trading Estate (SITE), Karachi, Pakistan

*Abdul Haleem Khan Yousufzai, Durdana Rais Hashmi, Abdul Salam, Ishaq Qaim Khani and Zahid Husain Khan

PCSIR Laboratories Complex Karachi Pakistan, 75280

*E-mail: ahkyousufzai@yahoo.com

(Received January 21, 1999; accepted July 24, 2000)

Key words: SITE, major ambient air pollutants, ozone

Continuous measurement of major ambient air pollutants such as $O_3$, $SO_2$, CO, NO, $NO_x$, PM10, methane and nonmethane hydrocarbons as well as meteorological parameters was carried out to obtain baseline data for the Sindh industrial trading estate (SITE) in Karachi. The total average concentration of $O_3$ was determined to be 13.3 ppb, $SO_2$ 24.9 $\mu$g/m$^3$, CO 0.7 ppm, NO 31.6 ppb, NO$_x$ 44.3 ppb, PM10 177.8 $\mu$g/m$^3$, methane 16.31 ppm, and nonmethane hydrocarbon 0.4 ppm. The average wind speed during the measurement was 2.2 m/sec, wind direction 169.6 degrees, humidity 45.2%, temperature 22.6°C, barometric pressure 1012.4 mBars, and solar flux 215.0 W/m$^2$. $SO_2$ and PM10 show similar variation which indicate that both pollutants originate from the same source. The results also suggest that the $O_3$, NO and $NO_x$ found in this area were mainly emitted from a small power generation plant and boiler of a nearby pharmaceutical industry, where as methane and nonmethane hydrocarbons were mostly emitted from nearby agricultural farms. The measurement of major ambient air pollutants and their dispersion trends in the atmosphere with respect to microclimatic effects is discussed.