Daily Variations of Polycyclic Aromatic Hydrocarbons (PAHs) in Industrial Sites in an Suburban Area of Sour El Ghozlane, Algeria

Authors : Sidali Khedidji, Noureddine Yassaa, Riad Ladji

Abstract : In this study, n-alkanes which are hazardous for the environment and human health were investigated in Sour El Ghozlane suburban atmosphere at a sampling point from April 2013 to Mai 2013. Ambient concentration measurements of n-Alkanes were carried out at a regional study of the cement industry in Sour El Ghozlane. During sampling, the airborne particulate matter was enriched onto PTFE filters by using a two medium volume samplers with or without a size-selective inlet for PM10 and TSP were used and each sampling period lasted approximately 24 h. The organic compounds were characterized using gas chromatography coupled with mass spectrometric detection (GC-MS). Total concentrations for n-Alkanes recorded in Sour El Ghozlane suburban ranged from 42 to 69 ng m-3. Gravimeter method was applied to the black smoke concentration data for Springer seasons. The 24 h average concentrations of n-alkanes contain the PM10 and TSP of Sour El Ghozlane suburban atmosphere were found in the range 0.50–7.06 ng/m3 and 0.29–6.97 ng/m3, respectively, in the sampling period. Meteorological factors, such as (relative humidity and temperature) were typically found to be affecting PMs, especially PM10. Air temperature did not seem to be significantly affecting TSP and PM10 mass concentrations. The guide value fixed by the European Community, 40 µg/m3 was not to exceed 35 days, was exceeded in some samples. However, it should be noted that the value limit fixed by the Algerian regulations 80 µg/m3 has been exceeded in 1 sampler during the period study.

Keywords : n-alkanes, PM10, TSP, particulate matter, cement industry
Conference Title : ICCE 2014 : International Conference on Chemical Ecology
Conference Location : London, United Kingdom
Conference Dates : December 22-23, 2014