

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

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Abstract : In this study, n-alkanes which are hazardous for the environment and human health were investigated in Sour El Ghazlane suburban atmosphere at a sampling point from April 2013 to May 2013. Ambient concentration measurements of n-Alkanes were carried out at a regional study of the cement industry in Sour El Ghazlane. 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 Ghazlane suburban ranged from 42 to 69 ng m⁻³. Gravimetric method was applied to the black smoke concentration data for winter seasons. The 24 h average concentrations of n-alkanes contain the PM₁₀ and TSP of Sour El Ghazlane 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

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