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Chemical composition of PM₁₀ collected indoor at workshop areas in a factory located in Santa Clara

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The objective of this work was to evaluate the exposure levels to PM₁₀ to which workers are exposed during the working day. Sampling was carried out in two workplace areas of a factory located in Santa Clara city: the iron casting workshop and the unmolding workshop. The factory utilizes as raw materials: iron scrap, ferroalloys, coke, and materials from the own process as pig iron and return sand, which are important sources of the pollutants present in particulate matter. The concentrations of PM₁₀ on the air were determined by gravimetric analysis. The samples were analyzed by Energy Dispersive X-ray Fluorescence (EDXRF) and Ionic Chromatography (IC) for determining the elemental composition and some ions of interest. X-ray Diffraction (XRD) analysis was applied to selected samples in order to identify possible phases of compounds commonly found in this type of industries. The results were compared with the reported in the Cuban Standard NC872:2011 that regulates the harmful substances in the air of the working zone and evaluates the occupational exposure.

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