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## Decrease of TSP, PM<sub>10</sub>, and Lead Concentration in a Lead Company in Alexandria City, Egypt

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### ABSTRACT

The study was carried out in a lead company inside Alexandria which exists in a residential area. Different sites have been selected inside the Department of Lead Improvement to measure TSP, PM<sub>10</sub>, and heavy lead during the melting process which takes place inside big alloying kettles and from the stack emissions. After that, the company made evaluation of the old factory and decision makers decided to make development for this factory through buying a complete unit for treatment with a special filter to make abatement for the level of emission especially for lead. The aim of this work is: 1) Put a plan for monitoring the level of different pollution after modification and to calculate the percentage of decrease (efficiency) of the new control unit through concentration of TSP, PM<sub>10</sub>, and lead through different processes; 2) Install a new filter to abate the different air pollutants such as TSP, PM<sub>10</sub>, and lead. Total Suspended Particulate (TSP) and Respiratory dust (PM<sub>10</sub>) measured by using Volume sampler and Air matrix. Lead was measured by the digestion of the samples with a mixture of hydrochloric and nitric acids and using Atomic Absorption Spectrophotometer. Results of measuring TSP, PM<sub>10</sub>, Lead in working environment, and lead inside stack before and after installation of the new filter showed percentage of decrease from 22% to 120%, 33% to 160%, 26% to 102%, and 51% to 56.5% respectively.

### KEYWORDS

 Air Pollution; TSP-PM<sub>10</sub>-Lead-Dry; Wet Filters

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