



Contribution of Fugitive Emissions for PM10 Concentrations in an Industrial Area of Portugal

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Significant atmospheric dust arises from the mechanical disturbance of granular material exposed to the air. Dust generated from these open sources is termed "fugitive" because it is not discharged to the atmosphere in a confined flow stream. Common sources of fugitive dust include unpaved roads, agricultural tilling operations, aggregate storage piles, heavy construction and harbor operations.

The objective of this work was to identify the likeliness and extend of the PM10 limit value exceedences due to fugitive emissions in a particularly zone where PM fugitive emissions are a core of environmental concerns – Mitrena, Portugal.

Mitrena, is an industrial area that coexists with a high-density urban region (Setúbal) and areas with an important environmental concern (Sado Estuary and Arrábida which belongs to the protected area Natura 2000 Network). Due to the typology of industry sited in Mitrena (e.g. power plant, paper mill, cement, pesticides and fertilized productions), there are a large uncontrolled PM fugitive emissions, providing from heavy traffic and handling and storage of raw material on uncover stockyards in the harbor and industries.

Dispersion modeling was performed with the software TAPM (The Air Pollution Model) and results were mapped over the study area, using GIS (Geographic Information Systems). Results showed that managing local particles concentrations can be a frustrating affair because the weight of fugitive sources is very high comparing with the local anthropogenic stationary sources. In order to ensure that the industry can continue to meet its commitments in protecting air quality, it is essential to warrant that the characteristics of releases from all fugitive sources are fully understood in order to target future investments in those areas where maximum benefit will be achieved.