



INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

"KEY ELEMENTS FOR A SUSTAINABLE WORLD: ENERGY, WATER AND CLIMATE CHANGE"

Pollution Prevention in an Auto Assembly Plant in Hermosillo, Mexico

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Abstract

The automotive industry is one of the main contributors to different types of pollutants. For instance, waste from plastics, aluminum, copper, rags, sandpapers, solvents and paints can be generated. In particular, automotive painting processes generates, among other issues, VOC emissions as paint solvents.

Automotive painting and coating products are formulated by using resins, pigments, volatile organic solvents, and chemical additives. Unfortunately, the automotive coatings process ranks at the top of the emission volume hierarchy. For this reason, knowing the pollution sources and their characteristics in this sector is important for a proper prevention. Several initiatives have been developed worldwide to promote occupational health and safety, and environmental protection through regulations, code of practices, and guidelines for prevention.

The purpose of this paper is to show relevant results about a case study conducted into a painting process within an automotive assembly facility in a northern city of Mexico, Hermosillo. This study includes a pollution prevention analysis for such process, based in the US EPA guide to pollution prevention. In addition, a literary analysis on preventive practices at regional and global levels on the subject has been conducted.

The analysis within the painting process focuses mainly in the "Primer" phase which consists of several steps starting with the sanding area and finishing in the manual zone area where paint is applied in areas where robots did not apply it. Some of the wastes from this process are remaining of sandpaper, contaminated rags, and paint and solvent residuals. Particularly, the later represents a critical issue for environmental and occupational health. As a result, one of the main conclusions of the study is that the lack of control of the process is one of the main sources for solvent wastes. This can be improved by controlling application parameters and process variables.

Keywords: Automotive industry, pollution prevention, painting process.
