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Recycling of batteries, source of exposure and lead contamination

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The recycling of automotive batteries is an industrial process that consists of the recovery of lead grids, acidic liquids and materials that contain them. Lead recovery occurs as a smelting process at more than 1100°C. During this process there are emissions of vapors and generation of fine powders. Additionally, they obtain lead oxides in complementary processes. This paper presents the health conditions of a workers (n=32) from a company that recovers lead from automotive batteries through melt processes. This company is medium; it includes work areas from the breaking of battery boxes, and handling of worn sulfuric acids. Once the lead is melted, it is recovered in solid plates and in the form of oxides. The company has a processing capacity of 30 tons per month. The average age of the study group is 39.6 (18-70) years; it is made up of 24 men and 8 women, with a working time of 3 months and up to 18 years. The blood lead concentration has been found to range from 7.4 ug/dl to 89.6 ug/dl, averaging 40.7±21 ug/dl and d-ALAD activity 371± 231 n moles/h/ml, and 83 % of these workers have ALAD activity inhibited, which is an indicator of toxicity and lead effects. In addition, the same percentage of workers with oxidative damage determined as MDA in blood coincides. The activities of greater exposure correspond to the personnel of the maneuvers in the furnace, as well as the oxidizer area and crucibles. Independently the industrial plant has fine powder dispersion within a radius of 60 m with respect to the center of the melting furnace.

Biography

Maria Maldonado-Vega completed her PhD and Master of Science in Research and Advanced Studies Center - Polytechnic National Institute (CINVESTAV-IPN) México. Currently, she has published 18 papers in refereed journals. She is serving as an editorial member of several reputed journal like *Journal of Nuclear Medicine & Radiation Therapy*. She is a member of Mexican Society of Biochemistry and member of Research Ethics Committee.

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