

Environmental Exposure Assessment among Refuellers at Brussels South Charleroi Airport

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Abstract : Introduction: Refuellers from Brussels South Charleroi Airport (BSCA) expressed concerns about the risks involved in handling JET-A1 fuel. The HSE Manager of BSCA, in collaboration with the occupational physician and the industrial hygiene unit of the External Service of Occupational Medicine, decided to assess the toxicological exposure of these workers. Materials and methods: Two measurement methods were used. The first was to assay three types of metabolites in urine to highlight the exposure to xylenes, toluene, and benzene in aircraft fuels. Out of 32 refuellers in the department, 26 participated in the sampling, and 23 samples were exploited. The second method targeted the assessment of environmental exposure to certain potentially hazardous substances that refuellers are likely to breathe in work areas at the airport. It was decided to carry out two ambient air measurement campaigns, using static systems on the one hand and, on the other hand, using individual sensors worn by the refuellers at the level of the respiratory tract. Volatile organic compounds and diesel particles were analyzed. Results: Despite the fears that motivated these analyzes, the overall results showed low levels of exposure, far below the existing limit values, both in air quality and in urinary measurements. Conclusion: These results are comparable to a study carried out in several French airports. The staff could be reassured, and then the medical surveillance was modified by the occupational physician. With the aviation development at BSCA, equipment and methods are evolving. Their exposure will have to be reassessed.

Keywords : refuelling, airport, exposure, fuel, occupational health, air quality

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