

# Urinary metabolite levels and symptoms in Filipino workers using organic solvents

Research Paper No. 1991-01



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## **Urinary metabolite levels and symptoms in Filipino workers using organic solvents**

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### **Abstract**

To compare symptoms with urinary metabolite levels, 900 workers from 7 organic solvent-using industries were studied. Urinary metabolites were determined using a high performance liquid chromatograph. Urinary hippuric acid concentrations exceeding the reference value (2.5 g/g creatinine) were found in 78 (8.7%) workers. However, only 3 (0.3%) and 1 (0.1%) of the participants exceeded the reference value for mandelic (0.8 g/g creatinine) and total methylhippuric acid (1.5 g/g creatinine), respectively. The sum of the values of the ratio of measured urinary metabolite concentration to the corresponding ACGIH's biological exposure indices (BEI) [(HA/BEI of HA + MHA/BEI of MHA + MA/BEI of MA)] exceeded 1.0 in 166 (18.4%) workers. Majority of them were from the footwear manufacturing industry (63/129 or 49.2%). Questionnaire interviews were also administered to determine the prevalence of symptoms while at work (acute symptoms) or within the past 6 months (chronic symptoms). Urinary metabolite levels of individual and mixed solvents were compared with the symptoms of all workers. Analysis using Spearman's rank correlation showed in workers whose urinary hippuric acid exceeded 3.75 g/g creatine (1.5 x BEI), significant correlation between their hippuric acid levels and subjective complaints. Workers whose sum of the values of the ratio of measured urinary metabolite concentration to corresponding BEI exceeded 1.5 were selected and comparing this level with their symptoms, significant correlation was also noted in some complaints.