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## Preliminary Risk Assessment Posed by Formaldehyde Residues in Clothing to Vietnamese Consumers

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### Author(s)

Van Nam Thai, Akihiro Tokai

### ABSTRACT

The assessment of potential health risks posed by formaldehyde in clothing to consumers is of increasing concern worldwide. Because of this, it is necessary to develop an exposure model that can realistically mimic clothes wearing conditions. This study aims to preliminarily develop a health risk assessment model for formaldehyde in clothing, and then to assess the potential health risk posed by formaldehyde in textiles to adults and infants in Vietnam using the model. Finally, this study aims to examine the plausibility of the adopted permissible values for formaldehyde in clothing in Vietnam. In the model, two exposure factors for dermal exposure and overall exposure routes, i.e. sweat type and perspiration area, were considered. The margins of exposure (MOE) were calculated to estimate the health risks from worst case and average exposures. The assessment shows that acute exposure via inhalation can pose health risks to Vietnamese consumers in both cases. In regards to chronic exposure, dermal exposure is about four (for infants) and seven (for adults) times higher than exposure via inhalation, but no risks were found for average exposure. If a MOE of 100 is defined as 'safe' used, dermal and total chronic exposure to worst case cause potential risks, whereas no health risks were found for exposure to average case. With the model, the adopted Vietnamese permissible values for formaldehyde in clothing were assessed as not posing a health risk to Vietnamese consumers, hence they are accepted.

### KEYWORDS

Formaldehyde, Health Risk, Exposure Model, Clothing, Vietnamese Consumers

### Cite this paper

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