

4. Conclusions

A component-based approach is recommended for the exposure-based screening assessment of potential hazards to public health from exposure to this mixture. The recommendations include the estimation of a hazard index for the reproductive effects of the triazine components of this mixture: atrazine/deethyl-atrazine and simazine. In addition, separate hazard quotients are to be estimated for the neurological effects of diazinon and the hematological effects of nitrate. This approach is appropriate when the hazard quotients of at least two of the components equal or exceed 0.1 (ATSDR 2001a). The WOE evaluation of interactions indicates high confidence in the additivity assumption (hazard index) for atrazine/deethyl-atrazine and simazine, and uncertainty regarding the potential effect of the other mixture components on the reproductive toxicity of these triazines. Further conclusions from the WOE analysis are that the triazine components may potentiate the neurological toxicity of diazinon such that the hazard quotient may underestimate the degree of hazard; confidence in that conclusion is medium. No information regarding the impact of interactions on the hematological toxicity of nitrate was available, so uncertainty is high for this endpoint. Although the individual components of the mixture have not been classified as carcinogens, the triazine components may interact with nitrate (as the metabolite nitrite) to form N-nitrosoatrazine and N-nitrososimazine, which are more genotoxic than the parent triazine compounds. The real potential for cancer risk in humans is unresolved and further studies are needed. When the screening criteria are exceeded (hazard index above one for reproductive effects of the triazine components, hazard quotient close to or above one for neurological effects of diazinon, and/or hazard quotient above one for nitrate), further evaluation is needed (ATSDR 2001a), using biomedical judgment and community-specific health outcome data, and taking into account community health concerns (ATSDR 1992).