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Support of Science-Based Decisions Concerning the Evaluation of the Toxicology of Mixtures: A New Beginning

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INTRODUCTION

Evaluation of potential human health hazards from exposure to chemical mixtures in the environment presents one of the most difficult challenges for risk assessment as well as for toxicological research. Yet legislative mandates (the so-called Superfund Act of 1980, the Food Quality Protection Act, and the Safe Drinking Water Act, Amendments passed in 1996) that apply to the U.S. EPA require consideration of joint chemical exposures and of chemical mixture toxicity in regulatory decision-making.

Current methods for conducting chemical mixture health risk assessments were developed to use available experimental data as well as the health effects data in the toxicological and epidemiological literature. These methods generally rely on default assumptions whose validity is unknown (ATSDR, 2000a,b,c; U.S. EPA, 2000). Moreover, the basic toxicology database is inadequate for assessing risk for the vast majority of chemical mixtures. Thus, a substantially enhanced toxicology research program is required in order to provide a strong, science-based approach to the assessment of the potential toxicity of chemical mixtures.