

# Scientists study whether biofuels are more or less toxic than conventional fuels

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With biofuels being used globally on a wider scale than ever before, scientists are discussing the implications of their use on human and environmental health at the Society of Toxicology (SOT) 53rd Annual Meeting and ToxExpo in Phoenix, Ariz.

"Because there are many different biofuels and [biofuel](#) blends that originate from different feedstocks, evaluating their effects on the environment and human [health](#) over their entire lifecycle becomes rather complex," says Annemoon M. van Erp, PhD, Health Effects Institute, co-chair of the "Are Biofuels More or Less Toxic Than Conventional Fuels and What Are the Implications for Human Exposure and Risk?" "There are several unknowns about the effects of long-term biofuel use."

Researchers widely agree that in most situations, biodiesel blends provide modest reductions in [emissions](#) of carbon monoxide, total hydrocarbons, and fine particulate matter, alongside slight increases in emissions of nitrogen oxides, when compared to conventional diesel fuel. However, modern vehicle systems are dramatically cleaner than those of the past, making it more difficult to discern small changes in emissions resulting from fuel alterations.

This difficulty is punctuated by the need to develop different, standardized screening processes for testing fuel mixtures and their complex emissions. During today's session, whose other co-chair is Michael C. Madden, PhD, US Environmental Protection Agency (EPA), the featured presenters are revealing the results of some of the tests

being developed and conducted to determine the toxicological properties of biofuel emissions. These presenters include:

- Kent Hoekman, PhD, Desert Research Institute, who is discussing the production and use of biofuels, focusing specifically on biodiesel and biodistillate fuels.
- Norman Kado, PhD, University of California Davis, who is describing the results of a multi-investigator, multi-institutional study on regulated and unregulated emissions from biofuels and their blends using a toxicity screening approach.
- Ian Gilmour, PhD, US EPA, who is presenting the results of a test program comparing the mutagenicity and toxicity of fuels ranging from 100 percent biodiesel to 100 percent petroleum diesel.
- Miriam Gerlofs-Nijland, National Institute for Public Health and the Environment, Netherlands, who is discussing the approaches being used in Europe for testing comparative biofuels toxicity.
- Marika Egyed, Health Canada, who is describing the results and use of Health Canada's risk assessment framework to evaluate the health impacts of biofuels.

"The findings to be discussed suggest that the risks of using biofuels are not all that different from the risks associated with the use of conventional fuels—at least not in terms of people being exposed to fuel blends at the production factory, in transporting or pumping them, and being exposed to their exhaust gases," says Dr. van Erp.

Provided by Society of Toxicology

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