

## **Even a small petrol station spill can cause significant health risks says new US study**

### **Industry news**

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**The study by Researchers at the Johns Hopkins Bloomberg School of Public Health developed a mathematical model and conducted experiments suggesting these small spills may be a larger issue than previously thought**

The report goes on to suggest that because they frequently happen, even small drops of fuel spilled at petrol stations could cumulatively be causing long-term environmental damage to soil and groundwater in nearby residential areas.

"Gas station owners have worked very hard to prevent gasoline from leaking out of underground storage tanks," says study leader Markus Hilpert, PhD, a senior scientist in the Department of Environmental Health Sciences in the Johns Hopkins Bloomberg School of Public Health. "But our research shows we should also be paying attention to the small spills that routinely occur when you refill your vehicle's tank."

Over the lifespan of a gas station, Hilpert says, concrete pads underneath the pumps can accumulate significant amounts of gasoline, which can eventually penetrate the concrete and escape into underlying soil and groundwater, potentially impacting the health of those who use wells as a water source. Conservatively, the researchers estimate, roughly 1,500 liters of gasoline are spilled at a typical gas station each decade.

Hilpert and Patrick N. Breysse, PhD, a professor in the Department of Environmental Health Sciences, developed a mathematical model to measure the amount of gasoline that permeates through the concrete of the gas-dispensing stations and the amount of gasoline that vaporizes into the air.

The model demonstrates that spilled gasoline droplets remain on concrete surfaces for minutes or longer, and a significant fraction of spilled gasoline droplets infiltrate into the pavement, as concrete is not impervious.

"In a perfect world, it would be ideal to avoid chronic spills," Hilpert says. "However, if these spills do occur, it is also important to prevent rainwater from flowing over the concrete pads underneath the pumps. Otherwise, storm runoff gets contaminated with benzene and other harmful chemicals and can infiltrate into adjacent soil patches or form storm water that may end up in natural bodies of water."