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New method extracts oil from tar sands

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UNIVERSITY PARK, Pa., March 16 (UPI) -- U.S. researchers say they've come up with an environmentally friendly way of extracting oil from tar sands, a method that can also help in cleaning oil spills.

Scientists at Penn State say the method uses ionic liquids to separate heavy, viscous oil from sand, a university release reported Wednesday.

Tar sands, also known as bituminous sands or oil sands, represent about two-thirds of the world's estimated oil reserves, but extracting the petroleum causes environmental damage.

Part of that damage comes from contaminated wastewater used in current separation processes, which can seep into and pollute groundwater.

The Penn State separation method uses very little energy and water, the researchers say, instead using ionic liquids -- salt in a liquid state -- that are recycled and reused.

The separation takes place at room temperature without the generation of waste process water, they say.

"Essentially, all of the bitumen is recovered in a very clean form, without any contamination from the ionic liquids," Paul Painter, Penn State professor of polymer said.

"Because the bitumen, solvents and sand/clay mixture separate into three distinct phases, each can be removed separately and the solvent can be reused."

The process can also be used to extract oil and tar from beach sand after oil spills such as the Deepwater Horizon disaster in the Gulf of Mexico last year.

Unlike other methods of cleanup, the Penn State process completely removes the hydrocarbons, and the cleaned sand can be returned to the beach instead of being sent to landfills, the researchers said.

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