Dispersants Make Oil 52 Times More Toxic … And Delay Cleanup of Oil Spills By Many Years

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Theme: Environment
In-depth Report: THE BP OIL SLICK

Here's the *Real Reason* Why Oil Companies Use Them On Spills

The Georgia Institute of Technology and Universidad Autonoma de Aguascalientes (UAA), Mexico published an article in the journal *Environmental Pollution* finding that dumping the dispersant Corexit into the Gulf of Mexico increased the toxicity of the mixture up to 52-fold over the oil alone.

Phys.org notes:

> Using oil from the Deep Water Horizon spill and Corexit, the dispersant required by the Environmental Protection Agency for clean up, the researchers tested toxicity of oil, dispersant and mixtures on five strains of rotifers. Rotifers have long been used by ecotoxicologists to assess toxicity in marine waters because of their fast response time, ease of use in tests and sensitivity to toxicants. In addition to causing mortality in adult rotifers, as little as 2.6 percent of the oil-dispersant mixture inhibited rotifer egg hatching by 50 percent. Inhibition of rotifer egg hatching from the sediments is important because these eggs hatch into rotifers each spring, reproduce in the water column, and provide food for baby fish, shrimp and crabs in estuaries.
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> "Dispersants are preapproved to help clean up oil spills and are widely used during disasters," said UAA's Roberto-Rico Martinez, who led the study. "But we have a poor understanding of their toxicity. Our study indicates the increase in toxicity may have been greatly underestimated following the Macondo well explosion."
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> Martinez performed the research while he was a Fulbright Fellow at Georgia Tech in the lab of School of Biology Professor Terry Snell. They hope that the study will encourage more scientists to investigate how oil and dispersants impact marine food webs and lead to improved management of future oil spills.
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> "What remains to be determined is whether the benefits of dispersing the oil by using Corexit are outweighed by the substantial increase in toxicity of the mixture," said Snell, chair of the School of Biology. "Perhaps we should allow the oil to naturally disperse. It might take longer, but it would have less toxic impact on marine ecosystems."

We've previously reported that even small amounts of dispersants are toxic to phytoplankton … the basis of the food chain in the Gulf.

We have documented for years that dispersants like corexit increase the toxicity to humans, animals and fish. For example, toxicologists noted in 2010 that corexit "ruptures red blood

cells, causes internal bleeding", "allows crude oil to penetrate "into the cells" and "every organ system". Scientists note that dispersants release much higher levels of cancer-causing polycyclic aromatic hydrocarbons than oil alone. Dispersants also cause gulf fish to absorb more toxins and then make it harder for the fish to get rid of the pollutants once exposed.

The New York Times noted of Corexit:

> "Of the 57 ingredients: 5 chemicals are associated with cancer; 33 are associated with skin irritation from rashes to burns; 33 are linked to eye irritation; 11 are or are suspected of being potential respiratory toxins or irritants; 10 are suspected kidney toxins; 8 are suspected or known to be toxic to aquatic organisms; and 5 are suspected to have a moderate acute toxicity to fish."

We've also previously noted that dispersants make oil last longer, because they slow the growth of oil-eating microbes. (and see this).

Dispersants also prevent collection of oil, as they break up oil slicks into tiny globules that cannot be harvested using clean up booms.

Indeed, scientists say that use of dispersants can delay recovery for years ... or even decades. (And it can even make oil particles airborne, so that they drift over land.)

The Daily Mail provided an update last week:

> Now scientists have warned that they may have simply made toxic components of the crude more mobile, allowing them to further penetrate beach sediments and leak back into the water where they could harm marine life.
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> Researchers from Utrecht University in the Netherlands and Florida State University examined the effects of the Corexit 9500A, a chemical dispersant BP pumped into surface waters and at the wellhead in response to the spill.
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> In a study detailed in the open-access journal PLoS ONE, they used laboratory-column experiments to simulate the movement of dispersed and non-dispersed oil through seawater-saturated beach sand.
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> They found that using Corexit 9500A has the unexpected effect of allowing potentially harmful crude oil components called polycyclic aromatic hydrocarbons (PAHs) to penetrate deeper and faster into the sands.
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> Once there the lack of oxygen may slow the degradation of the PHAs, extending their lifespan.
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> Even worse, the researchers warned, using such dispersants in oil spills near to the shore could allow these chemicals to penetrate sands deeply enough to threaten groundwater supplies.
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> The researchers say that the application of the dispersant chemicals changed the behaviour of the oil when it hit the gulf coast's beaches in three ways:
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> - It transformed the oil into tiny particles that were better able to

permeate through the sand;

- It coated these particles in such a way that they were less likely to stick to sand grains;
- And it coated the sand grains themselves, making them less able to hold on to the oil.

This meant that as waves from the gulf repeatedly flushed contaminated beaches, PAHs were pumped deeper and deeper into the sediment when dispersant was present.

It also meant that the flushing effect of the tides on an oil contaminated beach could allow the release of PHA's from the sand back into the water.

Indeed, it was known even before the Gulf oil spill that dispersants such as Corexit make everything worse. And now even _BP-funded scientists_ say that using Corexit in the Gulf made the oil spill worse.

So why was Corexit used?

Because it temporarily hid the amount of oil in the Gulf ... so that BP could pay lower fines (which are calculated based on the amount of oil spilled) and pretend – for p.r. purposes – that the spill wasn't very bad.

That's why oil companies will keep on using dispersants on spills: to try to temporarily hide the oil.

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