

Cousin of the 'ice that burns' emerges as greener new way to fight fires

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A new type of ice could be a more environmentally friendly method of extinguishing fires, scientists report. Credit: Wikipedia Commons

(PhysOrg.com) -- Researchers in Japan are reporting development of a new type of ice that may provide a more efficient, environmentally-friendly method for putting out fires, including out-of control blazes that destroy homes and forests. Their study appears in the current issue of *ACS' Industrial & Engineering Chemistry Research*.

Toshihisa Ueda and colleagues note in the new study that firefighters have used [water](#) and carbon dioxide as fire extinguishing agents for decades. That knowledge led the scientists on a quest to see if carbon dioxide hydrates, frozen crystals made of water and carbon dioxide bonded together, may serve as promising fire-suppressing materials.

Such icy chunks occur naturally in some parts of the world, including hydrates containing methane. Methane hydrates are a potential new source of natural gas, and are renowned as the “ice that burns.” They burst into flame when ignited.

To test their idea, the scientists used a special reactor to produce tiny pellets of carbon dioxide hydrates in the laboratory. They compared the fire-suppressing performance of these hydrates to similar-sized pellets made of normal ice (frozen water) and dry ice (frozen carbon dioxide) after sprinkling them onto several small, carefully controlled fires.

The hydrates extinguished flames faster than the other two substances, they say. The [hydrates](#) also used less water than ordinary ice and released less [carbon dioxide](#) than dry [ice](#), they note. Grinding the pellets into smaller pieces boosted their flame-fighting efficiency, the researchers say.

Provided by American Chemical Society ([news](#) : [web](#))

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