

'Green' fireworks may brighten eco-friendly 4th of July displays in future

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This picture shows a spectacular fireworks display on July 4, 2008, over New York City's East Village. Credit: Wikipedia Commons, David Shankbone

With millions of people in the United States eagerly awaiting those July 4 fireworks displays — and our Canadian neighbors doing likewise for their July 1 Canada Day celebrations — here's a prospect for those light shows of the future likely to ignite a smile on Mother Nature's face: A new generation of "green" fireworks is quietly making its way toward the sky.

That's "green" as in environmentally friendly.

Fireworks, flares and other so-called "pyrotechnics" traditionally have included potassium perchlorate as the oxidizer, a material that provides

the oxygen that fireworks need to burn. Perchlorate, however, is an environmental pollutant with potential adverse effects on people and wildlife. Pyrotechnics contain other ingredients, such color-producing heavy metals, with a similar potential.

Studies have shown that perchlorate from community fireworks displays conducted over lakes, for instance, can lead to perchlorate contamination of the water. For full details about how perchlorate contaminates lakes after fireworks displays, [Click here](#) for a study published in the American Chemical Society's peer-reviewed journal, *Environmental Science & Technology*.

Researchers, however, have developed new pyrotechnic formulas that replace perchlorate with nitrogen-rich materials or nitrocellulose that burn cleaner and produce less smoke, according to an article in ACS's weekly newsmagazine, *Chemical & Engineering News* (C&EN). To read it, click [here](#).

In the article, C&EN Associate Editor Bethany Halford says these nitrogen-rich formulas also use fewer color-producing chemicals, dramatically cutting down on the amount of heavy metals used and lowering their potentially toxic effects.

Some of these fireworks have already been used at circuses, rock concerts and other events, but none have been used at large outdoor displays. The problem: cost. The big challenge in launching these "eco-friendly" pyrotechnics into the sky is making them cost-competitive with conventional fireworks while maintaining their dazzle and glow, the article explains.

The article notes that fireworks manufacturers have little incentive to further develop the new green fireworks because no federal regulations currently limit releases of perchlorate from pyrotechnics.

Source: American Chemical Society ([news](#) : [web](#))

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