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Brief Report

Hazardous Materials Release Resulting from Home Production of Biodiesel — Colorado, May 2006

On May 7, 2006, a hazardous materials (HazMat) release occurred in a residential area of Colorado when a homeowner who was processing a tank of homemade biodiesel fuel forgot to turn off the tank's heating element and left for the weekend. The heating element overheated and caused a fire that burned the surrounding shed and equipment (Figure). The shed had contained >600 gallons of biodiesel and recycled restaurant cooking oil, smaller amounts of glycerin

FIGURE. Shed debris resulting from home-based biodiesel production fire — Colorado, 2006



Photo/Kenneth Killip

and sodium hydroxide, and 1-gallon containers of sulfuric and phosphoric acid; a mixture of these ingredients seeped into the ground during the fire. A certified HazMat team and the local fire department responded. Investigators found seven 55-gallon barrels of methanol and other hazardous materials outside the shed. No injuries or evacuations occurred. To prevent potential injuries, biodiesel should be purchased from a licensed commercial source.

The recent rise in petroleum prices has caused an increased interest in alternative fuels such as biodiesel (1). Although many alternative fuels exist (e.g., ethanol, hydrogen, and natural gas), biodiesel is used increasingly as a diesel-replacement fuel in the United States because it can be manufactured from readily available ingredients such as vegetable oil, animal fat, or recycled restaurant cooking oil (2). Biodiesel is created through a chemical process involving the reaction of fat or oil with methanol in the presence of a catalyst (e.g., sodium or potassium hydroxide) to produce methyl ester (i.e., biodiesel) and glycerin, a byproduct used in soap and other products (3,4). Biodiesel can be used in vehicles and machinery designed to operate on diesel fuel, such as automobiles with diesel (but not gasoline) engines, fuel and heating-oil boilers, and nonaviation turbines (3).

Biodiesel usually is produced commercially; however, some persons in the United States and elsewhere produce biodiesel in their homes for personal use. Those who produce homemade biodiesel should be aware of the substantial risk for injury. Substances used in biodiesel production can be highly explosive (i.e., methanol) or corrosive (i.e., sodium hydroxide). If improperly handled, these substances can cause severe eye, skin, and upper respiratory irritation; chemical burns; and other serious injuries (5–7). During the preceding 10 years, almost all fires and injuries caused by home production of biodiesel of which the National Biodiesel Board (NBB) is aware were caused by improper handling of methanol during production. NBB is the nonprofit trade association coordinating regulatory, technical, and market development of the fuel as a commercial product. The event described in this report is the first known to NBB involving a heating element in an unintentional fire related to home production of biodiesel.

This HazMat event was reported to the Hazardous Substances Emergency Events Surveillance (HSEES) system operated by the Colorado Department of Health and Environment; HSEES was created by the Agency for Toxic Substances and Disease Registry (ATSDR) (8). This multistate* health department surveillance system tracks morbidity and

* Colorado, Florida, Iowa, Louisiana, Michigan, Minnesota, New Jersey, New York, North Carolina, Oregon, Texas, Utah, Washington, and Wisconsin.

mortality resulting from events[†] involving the release of hazardous substances. However, because reporting HazMat events to HSEES is not mandatory, participating state health departments might not be informed about every event.

Production of homemade biodiesel can be dangerous for persons without appropriate training and equipment. Therefore, this fuel should be purchased from a licensed source.

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[†] An event is defined as a sudden, uncontrolled, or illegal release or threatened release of at least 10 lbs or 1 gallon of a hazardous substance or any amount of a hazardous substance if it is on the mandatory reporting list.

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Notice to Readers

Status Report on CDC Laboratory Animal Care Accreditation

CDC conducts vital animal research to understand and ultimately prevent viral, mycotic, bacterial, and other diseases that threaten populations worldwide. CDC has a moral and ethical responsibility to humanely care for the animals that contribute to this research.

Since 1967, CDC has participated in and received accreditation from the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) program. This accreditation process is an added safeguard to ensure ethical and humane treatment and care of the animals entrusted to the agency for participation in its research programs.

In late 2005, AAALAC conducted a review of CDC's research programs and laboratories for conducting animal research and noted certain areas in need of improvement, including the policies and procedures of CDC's Institutional Animal Care and Use Committee. AAALAC issued recommendations for raising the quality of animal care at CDC and enhancing worker safety. As a result of the AAALAC findings, CDC's accreditation was placed on probationary status.

In response to this review, CDC conducted its own investigation. Subsequently, during 2006, CDC upgraded its laboratory research facilities, improved the electronic records management system for its animal care program, and hired additional staff members to carry out the oversight and record-keeping functions required for the animal care and use program. In addition, CDC changed lines of authority and responsibility to ensure impartial and credible oversight, including moving oversight for the animal care and use program to the Office of the Director, putting it on equal standing with oversight for human subjects research, and assigning three veterinarians and two animal caretakers with independent access to the agency's Biosafety Level 4 laboratory.

In late October 2006, a five-member panel from AAALAC conducted a follow-up site visit to CDC's Atlanta campus; the official report is pending. CDC expects a full report from AAALAC in early 2007. Additional information regarding CDC's animal research facilities, practices, and electronic records management systems is available at <http://www.cdc.gov/od/science/regs/acup>.