Assessment

(U//FOUO) Use of Common Precursor Chemicals to Make Homemade Explosives

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Office of Intelligence and Analysis
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(U//FOUO) Use of Common Precursor Chemicals to Make Homemade Explosives

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(U) Prepared by the DHS/I&A Homeland Counterterrorism Division, Terrorist Targeting and Tactics Branch and the FBI/WMD Directorate, CBRN Weapons, Tradecraft, and Tactics Unit. The Interagency Threat Assessment and Coordination Group reviewed this product from the perspective of our non-federal partners.

(U) Scope

(U//FOUO) The DHS/Office of Intelligence and Analysis (I&A) and the FBI are releasing this Intelligence Assessment to raise awareness of terrorists' ability to acquire chemical precursor materials to manufacture homemade explosives. The Assessment is intended to assist federal, state, and local government agencies and authorities, the private sector, and other entities to develop priorities for protective and support measures relating to an existing or emerging threat to homeland security.

(U//FOUO) Acquisition of Materials to Manufacture Homemade Explosives

(U//FOUO) Terrorists can acquire precursor materials legally through a variety of commercial transactions, secondhand from individuals with access to such substances, or through theft.

(U) Homemade Explosives

(U//FOUO) Homemade explosives (HMEs) are made by combining commercially available ingredients to create an explosive substance or by combining military or commercial explosives to create a new, non-standard explosive mixture.

(U//FOUO) Many precursors can be purchased legitimately and without special authorization from chemical supply stores. They also are available at retail stores that sell beauty supply products,* hardware and home improvement materials, groceries, and swimming pool supplies, and are used widely in hospitals, universities, construction sites, industrial facilities, farms, and mining operations.

— (U//FOUO) In September 2009, authorities arrested Najibullah Zazi[USPER], who later pleaded guilty to providing material support to al-Qa'ida, among other charges. Zazi admitted he purchased from commercial sources materials necessary to produce the hydrogen peroxide-based explosive triacetone triperoxide (TATP) for use in improvised explosive devices (IEDs) in a planned attack on the New York subway.

— (U//FOUO) In April 2008, authorities arrested a high school senior, who later pleaded guilty to two federal explosives charges. His parents had called the police after ten pounds of ammonium nitrate (purchased over the Internet) was delivered to their home in Chesterfield, South Carolina. The teen had supplies sufficient for making several IEDs, and his journal contained precise plans on how to construct and deploy them, including documentation of several test detonations he had performed.

(U//FOUO) Would-be bombers can steal material, divert legitimate purchases, or falsify documents to procure these chemicals. Another method of acquisition is purchasing "precursors of precursors"—materials that require some processing to become suitable ingredients for the manufacture of HMEs. Precursors also can be accumulated by making multiple small purchases to minimize the attention a large purchase might generate.

— (U//FOUO) Islamic Jihad Union operatives arrested in Germany in July 2007 attempted to purchase highly concentrated hydrogen peroxide for bomb making, but were unable to do so without a permit. They later purchased it in lower concentrations that did not require a permit, with the intent of concentrating it themselves.

* (U) See DHS Roll Call Release "(U//FOUO) Indicators of Suspicious Acquisition of Beauty Supply Products," 26 February 2010.

— (U//FOUO) One of the 1993 World Trade Center bombers graduated from a U.S. university and worked as a chemical engineer for a U.S. company, where he used company letterhead to order the chemicals to make the HMEs used in that attack.

(U//FOUO) Some Homemade Explosives Require Few Scientific and Technical Skills

(U//FOUO) Energetic materials are produced by combining a fuel with an oxidizer. This process can vary from simply blending ingredients to a multi-step chemical synthesis requiring exotic precursors and laboratory equipment operated by a skilled chemist.

(U//FOUO) Blended HMEs. A blended HME is a mixture of two or more chemical components which, unlike components in synthesized HMEs, do not chemically combine to create a new chemical formulation. A blended HME requires two basic constituents: an oxidizer and a fuel. Oxidizers serve as a source of oxygen to produce rapid combustion-like reactions. Only a few chemical compounds can function as oxidizers in explosive formulations. Hydrogen peroxide and ammonium nitrate are the oxidizers most commonly used by terrorists, although potassium chlorate also can be used. Anything that can react with oxygen to produce heat can be used as a fuel, including gasoline and other petroleum fuels, aluminum powder, sugar, black pepper, or even flour.

— (U//FOUO) Terrorists planned to use blended HME mixtures containing concentrated hydrogen peroxide solutions in failed plots to attack U.S. facilities in Germany in September 2007 and in the abortive UK-based plot in August 2006 to down U.S.-bound airliners.

— (U//FOUO) Similar HME mixtures containing concentrated hydrogen peroxide solutions were used in both of the July 2005 attacks on the London transit system.

— (U//FOUO) The makers of the bomb that destroyed the Alfred P. Murrah Federal Building in Oklahoma City in 1995 used ammonium nitrate as the oxidizer and nitromethane as the fuel.

(U//FOUO) "Cooked," or synthesized, HMEs. In the *cooking*, or synthesis, of an HME, chemical precursors react to form a new chemical formulation. Cooking explosives requires greater sophistication than blending, but the increased availability in the public domain of instructions that include safety protocols for synthesizing such chemicals may be contributing to bomb makers' capabilities. Common synthesis precursors are hydrogen peroxide, acids, acetone, urea, and hexamine.[*]

[*] (U//FOUO) Hexamine, a precursor for hexamethylene triperoxide diamine (HMTD), is sold in solid tablet form and commonly used in outdoor cooking. Source: *Explosives: Military, Commercial, Homemade, and Precursors Identification Guide, Version 2.0, Naval Explosives Ordnance Disposal Technology Division, 24 August 2009.*

— (U//FOUO) UK terrorist operative Richard Reid used a TATP detonator concealed in a shoe in his unsuccessful December 2001 attempt to destroy a passenger airplane bound for the United States.

— (U//FOUO) The bombers in the 1993 attack on the World Trade Center used urea fertilizer and nitric acid to create the urea nitrate used as the main charge in their vehicle-borne improvised explosive device.

(U//FOUO) Potential Indicators of Homemade Explosive Production

(U//FOUO) Almost every HME manufacturing process affects its immediate environment. Although a single indicator may not be suspicious in itself, one or more of these indicators may point to HME production:

— (U//FOUO) Foul odors or caustic fumes coming from a room or building.

— (U//FOUO) Damage to ceilings and walls—such as corrosion of metal surfaces or structural damage—and paint discoloration from harsh chemical fumes.

— (U//FOUO) Strong chemical odors emanating from sewers and drain ditches.

— (U//FOUO) Large industrial fans or multiple fans in windows.

— (U//FOUO) Dead vegetation in the surrounding area.

— (U//FOUO) Presence of metal or plastic drums for storing explosives.

— (U//FOUO) Machinery—such as gas burners or mixers—for processing raw materials.

— (U//FOUO) Refrigerators or coolers used to store volatile chemicals and finished products.

(U) Outlook

(U//FOUO) Given the common availability of many HME precursors, most purchases of such materials—especially if made in small quantities—will not raise suspicion, making it difficult for law enforcement and the private sector to recognize potential illegitimate uses.

(U//FOUO) The DHS/Office for Bombing Prevention has instituted a Bomb Materials Awareness Program to assist local law enforcement agencies in engaging a wide spectrum of private sector establishments in their jurisdictions that manufacture, distribute, or sell HME precursors and products that contain them.

(U) Potential benefits of this program include:

— (U//FOUO) Private sector-point of sales awareness.

— (U//FOUO) Law enforcement-private sector partnerships.

— (U//FOUO) Community-based policing.

— (U//FOUO) Free, secure access to training and awareness materials.

— (U//FOUO) Consistent messaging.

(U) Reporting Notice:

(U) DHS and the FBI encourage recipients of this document to report information concerning suspicious or criminal activity to the nearest state and local fusion center and to the local FBI Joint Terrorism Task Force. State and Local fusion centers contact information can be found online at http://www.dhs.gov/files/resources/editorial_0306.shtm. The FBI regional phone numbers can be found online at http://www.fbi.gov/contact/fo/fo.htm and the DHS National Operations Center (NOC) can be reached by telephone at (202) 282-9685 or by e-mail at NOC.Fusion@dhs.gov. For information affecting the private sector and critical infrastructure, contact the National Infrastructure Coordinating Center (NICC), a sub-element of the NOC. The NICC can be reached by telephone at (202) 282-9201 or by e-mail at NICC@dhs.gov. When available, each report submitted should include the date, time, location, type of activity, number of people and type of equipment used for the activity, the name of the submitting company or organization, and a designated point of contact.

(U) The DHS Office for Bombing Prevention provides counter-IED information requirements and capabilities, and promotes IED information sharing, awareness and vigilance. Additional information on explosives can be found at the DHS TRIP*wire* and DHS TRIP*wire* Community Gateway websites, respectively located at http://www.tripwire.dhs.gov for law enforcement personnel and at http://cs.hsin.gov for the private sector. For access to either system, contact tripwirehelp@dhs.gov. For further information on TRIPwire and bombing prevention contact the DHS Office for Bombing Prevention at obp@dhs.gov.

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Survey

(U) Tracked by: HSEC-01-00000-ST-2009, HSEC-03-00000-ST-2009

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Homeland Security

Office of Intelligence and Analysis
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