Bomb-Making Materials Awareness Program (BMAP)

Law Enforcement User Guide

Homeland Security

Introduction

Improvised explosive device (IED) attacks remain the primary tactic for terrorists seeking a relatively uncomplicated, inexpensive means for inflicting mass casualties and maximum damage. There is a growing concern in the law enforcement and homeland security community about the availability of precursor chemicals and materials that can be purchased legally or potentially stolen from commercial businesses. Once obtained, these materials can be used to create homemade explosives (HME) and a variety of IEDs for multiple purposes, including carrying out a terrorist attack.

The United States Department of Homeland Security, Office for Bombing Prevention (DHS/OBP) is sponsoring a new outreach program known as the Bomb-Making Materials Awareness Program (BMAP). BMAP aims to increase private sector awareness of activities associated with bomb-making, including the manufacture of HME, common explosives used in terrorist IEDs. Our Department would like to urge law enforcement to encourage local businesses to participate in this important initiative.

As a partner in this program, our Department will provide you with awareness and informational materials, such as this training guide, to assist you in engaging and training local business partners to recognize suspicious behavior that could indicate bomb-making activity. Materials explained in this handbook, such as the awareness register card and break-room poster will provide partners with specific details on what may be considered suspicious, as well as clearly defined information as to whom to report such behavior and how to best report it. While not all suspicious purchasing behavior may be criminal or terrorist-related, BMAP will help facilitate an open exchange of information and a community security partnership between you and businesses in your jurisdiction, improving your ability to serve and protect your local businesses and the general public. Ensure that each business has the appropriate contact information should they encounter behavior that may be suspicious.

This information is meant for law enforcement and should not be passed on to community businesses.

Background on Homemade Explosives (HMEs) and Improvised Explosive Devices (IEDs)

Two basic components are needed to produce an explosive → a **fuel** and an **oxidizer**.

- Oxidizers serve as a source of oxygen to produce rapid combustion-like reactions with fuels added to them.
- An individual can either blend a fuel and oxidizer together or synthesize precursors to create a new chemical species. Synthesis requires more sophistication.
- Oxidizers and fuels can be found in many common products sold by various types of businesses.

Oxidizers

The left column of *Figure 1* displays all of the names and chemical symbols of oxidizer groups that can serve as oxidizers in explosives.

Oxidizer groups are always combined with another chemical to form an oxidizing compound. The center column lists those atoms commonly combined with oxidizing groups to make oxidizers.

The right column shows examples of oxidizers, such as hydrogen peroxide and ammonium nitrate. Two oxidizer groups, chlorates and peroxides, are highlighted on the card because they produce highly sensitive explosives, which are extremely dangerous.

Fuels

While there are only a certain number of chemical compounds that can serve as oxidizers in explosives, there are many materials that can serve as a fuel. The fuels are divided into three categories in *Figure 2*: hydrocarbons (materials comprised mostly of carbon and hydrogen atoms and routinely burned for heat or energy), energetic hydrocarbons (materials that incorporate the nitro group, which provides more potential energy at the molecular level because oxygen is added right onto the molecule), and elemental "hot" fuels (consisting primarily of powdered metals that tend to produce hypersensitive mixtures).

Explosives

Figure 3 displays popular blended improvised explosives, including ANFO (ammonium nitrate and fuel oil) and black powder (potassium nitrate, charcoal, and sulfur). Individuals can improvise these explosives by purchasing the necessary fuel and oxidizer components from local businesses.

Figure 4 displays popular synthesized improvised explosives, including TATP (acetone, hydrogen peroxide, strong acid) and HMTD (hexamine, hydrogen peroxide, and citric acid). Individuals can also improvise these explosives by purchasing the necessary precursor chemicals from local businesses.

Explosives are categorized based upon their sensitivity to heat, shock, and friction:

- Low explosives (e.g., black powder, peroxide-based explosives) are the most sensitive.
- Primary high explosives (e.g., mercury fulminate, lead azide) are moderately sensitive.
- Secondary high explosives (e.g., ANFO, RDX, TNT) are the least sensitive.

Firing Train

An explosive is a component of an improvised explosive device (IED). A firing train is necessary to ensure the efficient detonation of an IED. The explosive used as the main charge of the device determines the length and construction of the firing train. A firing train may contain some or all of the following components:

- A **power source** provides the electrical energy to the initiator (e.g., battery). **OPTIONAL**
- A **switch** makes, breaks, or changes a connection (e.g., cellular phone). **OPTIONAL**
- An **initiator** starts the deflagration or detonation of the device by providing the necessary heat, shock, or friction. **MANDATORY**
- A **booster** charge is needed when the main charge of an IED is an insensitive high explosive, such as HMX or ANFO. **OPTIONAL**
- The **main charge** provides an explosion by its own energy when initiated. **MANDATORY**

This information is meant for law enforcement and should not be passed on to community businesses.

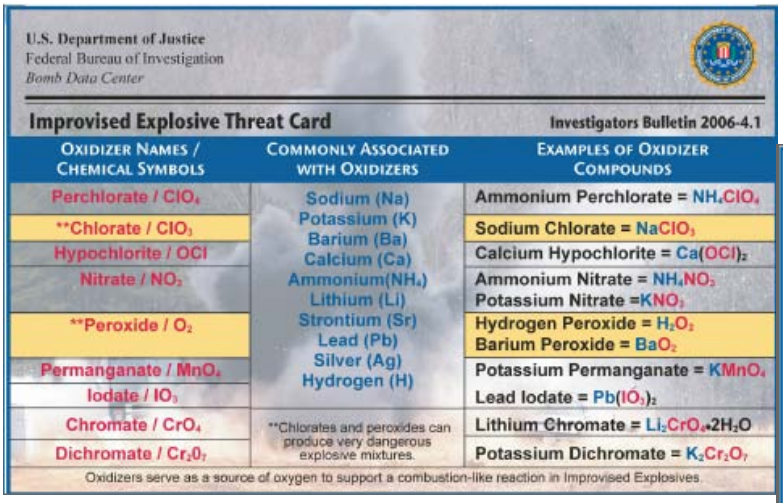

Figure 1: Oxidizers

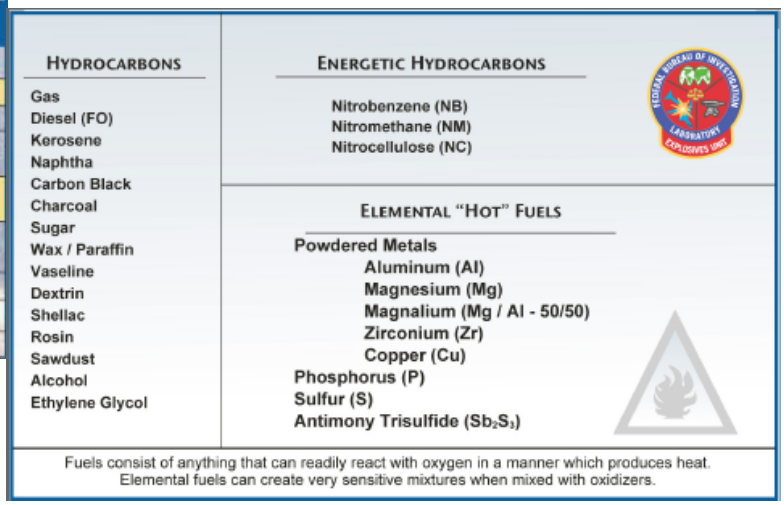

Figure 2: Fuels

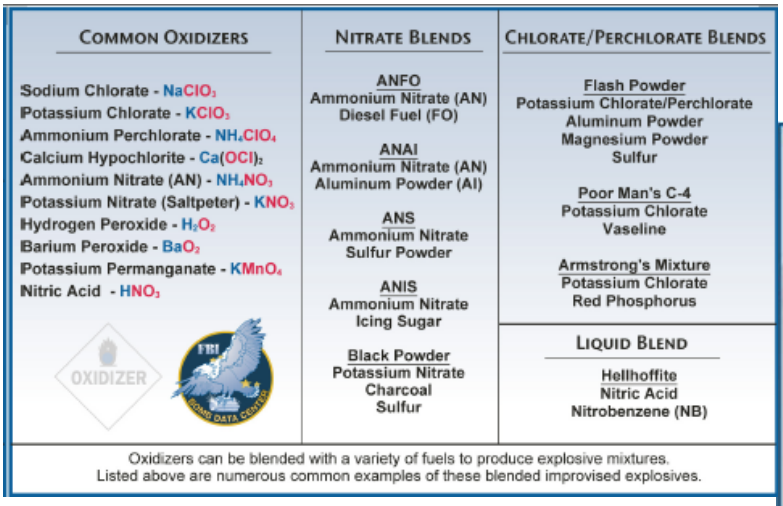

Figure 3: Blended Explosives

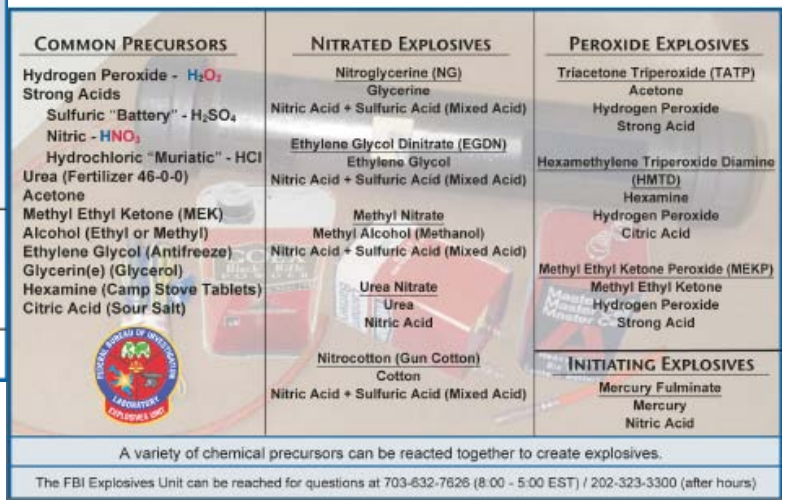

Figure 4: Synthesized Explosives

Common Explosive Precursor Chemicals Quick Reference Guide

Here are some dual-use chemicals that are common precursor materials for improvised explosive compounds including a description of their appearance, odor, hazards, and pictures.

NOTE: Some of these are household materials, but bulk or inordinate quantities of one of these substances or a combination of them could indicate an explosives-making laboratory.

NAME	DESCRIPTION	ODOR	PICTURE
Acetone **	Colorless liquid, but can also have a variety of dyes added	Sweet, fragrant, and mint-like aroma	
Ammonia **	Colorless liquid	Strong, pungent	
Ammonium Nitrate	Prills (small, compressed pellets) white to brown in color, depending on impurities`	Odorless	
Benzene **	Colorless, flammable liquid	Sweet, chemical-like	
Butane / Fuel Oil / Kerosene / Diesel Fuel	Colorless, flammable easily liquefied gas	Sweet, chemical-like; similar to a gas station	
Calcium Hypochlorite	White crystalline solid in the form of granules	Strong chlorine-like	
Glycerin	Colorless, viscous liquid that has a sweet taste	Odorless	
Hexamine	White powder that is often produced as tablets	Odorless	
Hydrochloric / Muriatic Acid **	Colorless or slightly yellow fuming liquid	Irritating, acrid	
Hydrogen Peroxide **	Clear liquid, slightly more viscous than water	Odorless	
Mercury **	Thick silver, metallic-looking liquid at room temperature	Odorless or slightly metallic	

NAME	DESCRIPTION	ODOR	PICTURE
Nitric Acid	Clear, colorless liquid, or a yellow or red fuming liquid	Irritating, acrid	
Phenol / Aspirin	Clear or white, crystalline mass; sometimes can appear reddish or pinkish	Distinctly aromatic, sweet, or tar-like	
Potassium Chlorate	Colorless, lustrous crystals or as white granules	Odorless	
Potassium Nitrate	White granular or crystalline powder	Odorless	
Potassium Permanganate	Dark purple or bronze-like crystals	Odorless	
Sodium Azide	White hexagonal crystals	Odorless	
Sodium Chlorate	White crystalline powder or granular substance	Odorless	
Sugar / Powdered Sugar	White, crystalline solid	Odorless, but may have a caramel smell when heated	
Sulfuric Acid / Drain Cleaner **	Colorless, odorless, oil liquid; when impure has a brownish hue	Odorless, but strong concentrations in the air can be pungent and irritating	
Toluene **	Clear, colorless liquid	Sweet, chemical-like	
Urea	White crystals or powder	Odorless, but it may acquire the odor of ammonia or urine when exposed to water	

****Indicates chemicals that can be used to make both explosives and narcotics**

Law Enforcement Messaging

Law enforcement should inform private sector partners of the importance of recognizing suspicious behavior and purchases in preventing improvised explosive device (IED) attacks. Bomb-making steps are generally the same regardless of an individual's appearance or ideological/religious affiliation. Effective practices in identifying suspicious behavior and purchases include both paying attention to customers and knowing what is suspicious. The following signs are contained on both the posters and register cards.

- Pay attention to customers:
  - Notice atypical customers
  - Strike up a conversation
  - Offer product-related advice
  - Suggest a complimentary product
  - Suggest a substitute
  - Offer delivery on bulk purchases
  - Keep a notepad on suspicious behavior
- Know what is suspicious:
  - Appears nervous
  - Gives evasive responses
  - Lacks knowledge of product's proper use
  - Requests product in unusual amounts
  - Refuses to purchase substitute
  - Insists on in-store pick-up
  - Makes large cash purchases

Law enforcement should encourage private sector partners to use their professional experience and judgment to determine if a customer request, interaction, or set of circumstances is unusual.

Law Enforcement Checklist

- ☑ Determine private sector partners
- ☑ Train appropriate personnel on the IED threat
- ☑ Train appropriate personnel to engage with private sector
- ☑ Update BMAP posters and register cards with appropriate contact information
- ☑ Engage private sector partners and deliver BMAP materials
- ☑ Ensure private sector partners know when and how to contact authorities

A template to record potential business partners in your area, including beauty and chemical suppliers, is provided on page 12, while a template to track the businesses that have received BMAP materials is provided on page 13.

BMAP will only be as effective as the dedicated law enforcement officers the implement the program. Be sure to engage the appropriate businesses and equip them with the appropriate tools and information necessary to accomplish the mission.

Threat of Hazardous Chemicals

Some commonly-used, over-the-counter products contain chemicals that in high concentrations become hazardous and unstable when combined with other chemicals.

- These mixtures form homemade explosives (HME) commonly used by terrorists, such as the HME used in the 1993 World Trade Center bombing, 1995 Oklahoma City bombing, and 2005 London mass transit bombings.

Posters should be displayed in areas frequented by business employees, such as a break or storage room, but not in areas accessible to customers or patrons.

Register cards should be displayed at or near the point-of-purchase, such as sales registers or shipping areas.

Managers or store owners should include contact information for local police and the local FBI field office on both the posters and register cards.

Prevention Opportunities

The posters and cards display common examples of hazardous chemicals and products that utilize them.

- Both **acetone** and **hydrogen peroxide** are components of triacetone triperoxide (TATP), which was used in the 2005 London mass transit bombing. Acetone is found in solvents and nail polish removers, and hydrogen peroxide is found in pool sanitizers and hair dyes. These two chemicals brought simultaneously may indicate that an individual is constructing TATP.
- Both **ammonium nitrate** and **urea** are used as fertilizers and, when combined with other chemicals – among them, **benzene** – form a secondary high explosive. Ammonium nitrate fuel oil (ANFO) was used in the 1995 Oklahoma City bombing, whereas urea nitrate was used in the 1993 World Trade Center bombing.
- **MEKP** is a liquid explosive containing hydrogen peroxide and is used as a curing and bonding agent.
- **Hexamine**, found in fuel tablets, serves as a component of hexamethylene triperoxide diamine (HMTD), another highly unstable peroxide-based HME.
- **Strong acids** found in batteries and cleaning products serve as the third ingredient of both TATP and MEKP, among other explosives.

The posters and cards also provide guidance on recognizing and reporting suspicious purchases of products containing hazardous chemicals. Managers should encourage their employees to:

- Identify and familiarize themselves with the products that contain hazardous chemicals sold by their business to better recognize suspicious purchasing behavior.
- Report suspicious people or purchases, such as irregular customers or bulk purchases of products containing hazardous chemicals.
- Check their store's inventory to determine if a product is missing, which may indicate that someone has stolen the material to use in an HME, and report missing products.
- Ask customers for identification and maintain a log of large purchases to determine if a patron is stocking up on chemicals, which may indicate terrorist activity.

FBI-DHS
Private Sector Advisory

Do You Buy, Sell, or Use

Hazardous Chemicals?

Over-the-counter products can contain chemicals that in high concentration or when blended with other chemicals may become hazardous and unstable. These products have been used for illicit and terrorist purposes.

What Are Common Examples?

Chemical	Common Usage
Acetone	Solvents, Nail Polish Remover
Hydrogen Peroxide	Hair Developer, Pool Sanitizers
Ammonium Nitrate	Fertilizer
Benzene	Solvents, Gasoline
MEKP	Curing and Bonding Agents
Urea	Fertilizer
Hexamine	Fuel Tablets
Strong Acids	Batteries, Cleaning Products

How Can You Help?

- ☑ Recognize hazardous chemicals in your product inventory
- ☑ Know your customers and report suspicious or unusual purchases to authorities
- ☑ Check your inventory and report missing or stolen products
- ☑ Ask for customer I.D. and maintain a log of large purchases

Concerned? Contact local authorities for more information:

Local Police: _____

Local FBI Office: _____

Hazardous Chemical Awareness

FBI-DHS
Private Sector Advisory

Some commercial products contain chemicals that can be used for illicit or terrorist purposes. Authorities need your assistance to keep your community safe. See reverse for more information.

What can you do? Follow these simple steps:

- ☑ Recognize hazardous chemicals in your product inventory
- ☑ Know your customers and report suspicious or unusual purchases to authorities
- ☑ Check your inventory and report missing or stolen products
- ☑ Ask for customer I.D. and maintain a log of large purchases

Concerned? Contact local authorities for more information:

Police Department: _____

Local FBI Office: _____

Know your inventory. Be aware. Your effort makes a difference.

Hazardous Chemical Awareness

FBI-DHS
Private Sector Advisory

In certain mixtures or concentration, chemicals may become hazardous and used for dangerous purpose. Do you buy, sell, or use any of the following chemicals?

Chemical	Usage
Acetone	Solvents, Nail Polish Remover
Hydrogen Peroxide	Hair Developer, Pool Sanitizers, Cleaning products
Ammonium Nitrate	Fertilizer
Benzene	Solvents, Gasoline
MEKP	Curing and Bonding Agents
Urea	Fertilizer
Hexamine	Fuel Tablets
Strong Acids	Batteries, Cleaning Products

Know your inventory. Be aware. Your effort makes a difference.

Threat of Peroxide Products

Some commonly-used, over-the-counter products contain hydrogen peroxide in high concentrations that become hazardous and unstable when combined with other certain types of chemicals.

- These mixtures form homemade explosives (HME) commonly used by terrorists, such as the HME used in the 2005 London mass transit bombings.

Posters should be displayed in areas frequented by business employees, such as a break or storage room, but not in areas accessible to customers or patrons.

Register cards should be displayed at or near the point-of-purchase, such as sales registers or shipping areas.

Managers or store owners should include contact information for local police and local FBI field office on both the posters and register cards.

Prevention Opportunities

The posters and cards display common examples of products that contain hydrogen peroxide, a component of many HMEs such as triacetone triperoxide (TATP), hexamethylene triperoxide diamine (HMTD), and methyl ethyl ketone peroxide (MEKP).

- **Spa and pool sanitizers**
- **Hair color developers**
- **Curing and bonding agents**
- **Household cleaning solutions**

The posters and cards also recommend ways to help recognize and report suspicious purchases of products containing hydrogen peroxide. Managers should encourage their employees to:

- Identify and familiarize themselves with the products that contain hydrogen peroxide sold by their business to better recognize suspicious purchasing behavior.
- Report suspicious people or purchases, such as irregular customers or bulk purchases of products containing hydrogen peroxide.
- Check their store's inventory to determine if a product is missing, which may indicate that someone has stolen the material to use in an HME, and report missing products.
- Ask customers for identification and maintain a log of large purchases to determine if a patron is stocking up on chemicals, which may indicate terrorist activity.

FBI-DHS
Private Sector Advisory

Do You Buy, Sell, or Use
Peroxide Products?

Over-the-counter products can contain hydrogen peroxide in high concentration that may become hazardous and unstable when blended with other chemicals. These mixtures have been used for illicit and terrorist purposes.

What Are Common Examples?

- Spa and pool sanitizers
- Hair color developers
- Curing and bonding agents
- Household cleaning solutions

How Can You Help?

- ☑ Recognize peroxide chemicals in your product inventory
- ☑ Know your customers and report suspicious or unusual purchases to authorities
- ☑ Check your inventory and report missing or stolen products
- ☑ Ask for customer I.D. and maintain a log of large purchases

Concerned? Contact local authorities for more information:

Local Police: _____

Local FBI Office: _____

Peroxide Product Awareness

FBI-DHS
Private Sector Advisory

Products that contain peroxides can be unstable in high concentration or when blended with other chemicals and have been used for illicit and terrorist purposes. See reverse for details.

What can you do? Follow these simple steps:

- ☑ Recognize hazardous chemicals in your product inventory
- ☑ Know your customers and report suspicious or unusual purchases to authorities
- ☑ Check your inventory and report missing or stolen products
- ☑ Ask for customer I.D. and maintain a log of large purchases

Concerned? Contact local authorities for more information:

Police Department: _____

Local FBI Office: _____

Know your products. Be aware. Your effort makes a difference.

Peroxide Product Awareness

FBI-DHS
Private Sector Advisory

What are common examples?

- Spa and pool sanitizers
- Hair color developers / bleachers
- Household cleaning products
- Specialty bonding and curing agents
- Industrial oxidizers

Media image of high concentration hydrogen peroxide products seized by German police following raids on suspected terrorists.

Know your products. Be aware. Your effort makes a difference.

Recognition of Suspicious Behavior

Terrorists and would-be terrorists often exhibit suspicious behavior during the purchase of precursor chemicals or materials to be used in a homemade explosive (HME), an improvised explosive device (IED), or an IED-related attack.

- Focusing on behavior, rather than physical appearance, allows employees to more accurately identify suspicious activity. Bomb-making steps are generally the same regardless of an individual's appearance or ideological/religious affiliation.
- The 2007 Fort Dix plot was disrupted after an alert clerk notified police of suspicious activity recorded on a videotape that he was converting.

Posters should be displayed in areas frequented by business employees, such as a break or storage room, but not in areas accessible to customers or patrons.

Register cards should be displayed at or near the point-of-purchase, such as sales registers or shipping areas.

Managers or store owners should include contact information for local police and local FBI field office on both the posters and register cards.

Prevention Opportunities

The posters and cards display common examples of suspicious behavior that may be a result of an individual's intention to use a store's products or services for IED-related activities.

- **Nervous or evasive customer attitudes** may indicate that an individual is worried about his or her ability to purchase the desired product or service and evade capture.
- Since many precursor chemicals and materials are dual-use, individuals planning to construct a HME may have **vague knowledge of a product's proper use** and instead know only of their usage as an explosive component.
- Individuals purchasing **unusual quantities of a product**, such as bulk purchases, may indicate the collection and storage of precursor materials to be used in HMEs.
- Individuals' **refusal to purchase substitutes** may serve as an indicator that the individual intends to use the desired product as a precursor to an HME.
- **Insistence on in-store pick-up for bulk purchases** and **large cash purchases** may indicate that the customer is attempting to remain anonymous to evade being traced.

The posters and cards also recommend ways to help recognize and report suspicious behavior. Managers should encourage their employees to:

- Learn and understand how their business's products and services can be used in IED-related activities.
  - For example, acetone, found in nail polish, may be used in the HME, triacetone triperoxide (TATP).
- Question customers about their intended use of a product or service and suggest alternatives in order to help determine if a customer is behaving suspiciously.
- Ask customers for identification and maintain a log of suspicious purchases to determine if a patron has a history of suspicious behavior, which may indicate terrorist activity.
- Become familiar with their customers, so that they are more likely to recognize behavior that is out of the ordinary and considered suspicious.

FBI-DHS
Private Sector Advisory

Are You Aware of

Suspicious Behavior?

Businesses can become unwitting participants in illicit or terrorist activities. Be aware of unusual or suspicious purchases or usage of your products and services.

What Are Common Examples?

- Nervous or evasive customer attitudes
- Vague knowledge of product's proper use
- Unusual product quantities
- Refusal to purchase substitutes
- Insistence on in-store pick-up for bulk purchases
- Large cash purchases

CCTV captures terrorists purchasing bulk quantities of hydrogen peroxide that was used in London attacks

How Can You Help?

- ☑ Understand how your products and services may be used illicitly
- ☑ Discuss product or service usage with customers and suggest alternatives
- ☑ Ask for customer I.D. and maintain a log of suspicious purchases
- ☑ Know your customers and report suspicious activity to authorities

Surveillance footage shows terrorists moving bulk quantities of ammonium nitrate into commercial storage facilities for use in attacks

Concerned? Contact local authorities for more information:

Local Police: _____

Local FBI Office: _____

Suspicious Behavior Awareness

FBI-DHS
Private Sector Advisory

Businesses can become unwitting participants in illicit or terrorist activities. Be aware of unusual or suspicious purchases or usage of your products and services. See reverse for details.

What can you do? Follow these simple steps:

- ☑ Understand how your products and services may be used illicitly
- ☑ Discuss product or service usage with customers and suggest alternatives
- ☑ Ask for customer I.D. and maintain a log of suspicious purchases
- ☑ Know your customers and report suspicious activity to authorities

Concerned? Contact local authorities for more information:

Local Police: _____

Local FBI Office: _____

Know your customers. Be aware. Your effort makes a difference.

Suspicious Behavior Awareness

FBI-DHS
Private Sector Advisory

What are common examples?

- Nervous or evasive customer attitude
- Vague knowledge of a product's proper use
- Requests for unusual product quantities
- Refusal to purchase or utilize recommended substitutes
- Insistence on in-store pick-up for bulk purchases
- Large cash purchases

CCTV captures terrorists purchasing bulk quantities of hydrogen peroxide that was used in London attacks

Surveillance footage shows terrorists moving bulk quantities of ammonium nitrate into commercial storage facilities for use in attacks

Know your customers. Be aware. Your effort makes a difference.

FBI-DHS

Potential Business Partners - SAMPLE

Police Station _____

Cities/Neighborhoods Served _____

Local Chamber of Commerce _____

Local Beauty Supply Stores

Name of Business _____
Address _____
Phone Number _____
Email _____
Contact _____

Name of Business _____
Address _____
Phone Number _____
Email _____
Contact _____

Local Hardware Stores

Name of Business _____
Address _____
Phone Number _____
Email _____
Contact _____

Name of Business _____
Address _____
Phone Number _____
Email _____
Contact _____

Local Chemical Suppliers

Name of Business _____
Address _____
Phone Number _____
Email _____
Contact _____

Name of Business _____
Address _____
Phone Number _____
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Local Medical Suppliers

Name of Business _____
Address _____
Phone Number _____
Email _____
Contact _____

Name of Business _____
Address _____
Phone Number _____
Email _____
Contact _____

Homeland Security

FBI-DHS

Tracking of Delivered BMAP Materials - SAMPLE

Police Station ______________________________

Name of Business ____________________
Address ____________________________
Phone Number _______________________
Email ______________________________
Contact ____________________________
Delivery Date _______________________
Materials Delivered ___________________

Name of Business ____________________
Address ____________________________
Phone Number _______________________
Email ______________________________
Contact ____________________________
Delivery Date _______________________
Materials Delivered ___________________

Name of Business ____________________
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Homeland Security