

# Terrorism Awareness: Weapons Of Mass Destruction: Part I, Chemical Agents

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## Abstract

This article written in 4 parts. It covers the fields of terrorism awareness and some of the weapons used by terrorists: chemical, biological, radiological and explosive weapons.

## THE THREAT

At 2 PM, on any normal workday, your security office receives a phone call. The caller states that there is a bomb planted on you facility set to go off in one hour. What is your facilities procedure to handle this situation? Can you handle it alone? Is there a real bomb or is it just another fake call? These and many others are all questions that will be asked when this type of situation occurs at you facility.

Terrorism, yes or no?

That is another good question. To answer it and the many other questions that will be asked, we first must understand what terrorism is. The Federal Bureau of Investigation (FBI) defines terrorism as “the unlawful use of force against persons or property to intimidate or coerce a government, the civilian population or any segment thereof, in the furtherance of political or social objectives.” In short, terrorism is an act or the threat of an act, by someone to further their cause, whatever it may be.

For many years, we in the United States have seen terrorist acts all over the world. To a certain degree we have felt like we were untouchable. Well, as we all know, we are all touchable. Terrorists have the power, money, knowledge and / or ability to strike anyone, anywhere in the world. These types of incidents don't just happen in the big cities of America. Any town or city can be hit.

There are two categories of terrorism, domestic and international.

- Domestic terrorism involves groups or individuals whose activities, conducted in the US without

foreign influence, are directed at elements of the United States Government or its population.

- International terrorism involves activity committed by foreign-based groups or individuals who are either directed by countries or groups outside the United States or whose activities transcend national boundaries.

Don't think you are not a target just because you're not a political figurehead or your facility is not the largest kid on the block. These targets may have protective measures in place, reducing the chance of an attack; whereas you or your facility may have no protective measures.

## PAST TERRORIST EVENTS

### THE WORLD TRADE CENTER BOMBING, 1993

- The aim was to destroy the faith in the government's ability to protect its citizens.
- The goal was to collapse one tower into the other, destroying them both. This would have pushed the number of victims to over 100,000.

### TOKYO, JAPAN, 1995

- A low concentration of Sarin nerve agent was released in the subway.
- 13 dead; 5510 treated, including 165 first responders.
- Approximately 5,000 were psychological casualties.

**ALFRED P. MURRAH FEDERAL BUILDING,  
OKLAHOMA CITY, OKLAHOMA, 1995**

- 168 dead with hundreds injured.

**THOMAS LEWIS LAVY, DECEMBER 1995**

- Arrested and charged with the possession of a toxic substance, "Ricin".

**OLYMPIC PARK BOMBING, 1996**

- A backpack with small device explodes, just after a garbled bomb threat to 911.

**ATLANTA, GEORGIA, WOMEN'S CLINIC, 1997**

- Device explodes outside the closed women's clinic.
- One hour later, a second device explodes only a few yards from the Command Post and Media. Its intent was to kill and injure the responders.

**BIRMINGHAM, ALABAMA, WOMEN'S CLINIC,  
1998**

- Bomb explodes killing an off duty police officer and critically injuring a nurse.

**KENYA AND TANZANIA, AFRICA, 1999**

- Two US Embassies were bombed. Together 257 dead and 5,000 injured.

In the past, acts of terrorism were aimed at certain groups, with the intent of producing some type of political effect. Today, no one is immune. The targets are the citizens of the area and even worse, the Emergency Response Personnel (ERP) there to protect them.

**OTHER AREAS THAT FALL INTO THE LIST OF  
POSSIBLE TARGETS INCLUDE BUT ARE NOT  
LIMITED TO**

- Public assemblies
- Public buildings
- Mass Transit Systems
- Telecommunication facilities
- Industrial facilities

- Place with high economic impact
- Places with historical or symbolic significance

We live in a new and ever changing world. In this world we have all become targets. Even if there is never a terrorist incident in your area, you have been affected. Government and private agencies alike have to prepare. With this preparation comes an economical impact or loss for the industry and the community.

We have discussed the threat we all now face. To future understand this threat, you must have an awareness of the different types of attacks used, and the agents that could be involved.

**THE AGENTS OF TERROR**

Earlier you were shown a listing of past terrorist events. The majority, approximately 70%, involves some type of bombing or explosion. Not all events will involve explosives. Someone could release an airborne agent in the air-conditioning system; a valve on a tank car or rail car could be turned on; or an agent could be sprayed on a salad bar at the local restaurant. The list could go on and on. The only limitation being the person's imagination.

With the introduction of the World Wide Web, anyone at anytime can log on and find information on how to make Ricin, buy different types of biological agents, and even build a bomb, for as little as \$20.00. This has been proven true in several recent events. The shooting at the Columbine High School in Colorado is a prime example. The two young men received information on how to build pipe bombs off the Internet. Another incident occurred when a man ordered freeze-dried Yersinia Pestis, the bacteria that causes bubonic plague, from a biological lab. He was arrested in Ohio on charges of mail fraud and fraud by wire after misrepresenting himself when ordering the agent. Unfortunately, it has become easy to get items like these.

The Department of Justice and the military have identified the most common types of chemical, biological and radiological materials used. Some of the easiest and cheapest types of devices and agents can be made at home.

Before we discuss the different types of agents, we must remember the routes of entry or exposure.

- Inhalation - breathing the agent.
- Injection - having the agent injected into the body.

- Ingestion - eating or drinking a contaminated product or having contaminated skin, gloves or other items.
- Direct Skin Contact - having the agent directly or indirectly place on the skin.
- Absorption - having the agent absorbed through the skin.

All of the agents we will discuss have multiple ways of entering the body and producing ill or lethal effects to the contaminated and exposed victim.

## **CHEMICAL AGENTS**

Chemical agents are substances that can injure or kill through a variety of means. The main ones we will be discussing in this section are also identified by military classification codes. This can give field personnel a quick reference to their characteristics and hazards. Elements and compounds of these agents are in most of the chemicals processed commercially by industry.

Chemical agents are classified according to the way they affect people. They are either toxic and / or irritating.

## **TOXIC AGENTS**

- Choking Agents
- Blood Agents
- Blister Agents
- Nerve Agents

## **CHOKING AGENTS (IRRITATING AGENTS)**

Choking or irritating agents cause an irritation to the eyes and the airway. Associated symptoms include coughing, shortness of breath, chest pain and pulmonary edema (fluid in the lungs) that can result in asphyxiation resembling drowning.

Two choking agents we are going to discuss are Phosgene (CG) and Chlorine (CI). Both are commercially available agents. They are heavier than air and will settle into the low areas. If released in a multi-story building, you may only have to evacuate one floor above the release, but possibly would have to evacuate several floors below the release.

Phosgene smells like newly mown hay and everyone recognizes Chlorine. Once either product is inhaled, they

immediately irritate the respiratory tract. In some tests, serious symptoms do not develop for two to three hours.

A SCBA will provide you protection from these agents. There are no reported cases of absorption through the skin. If you do come in direct contact with the product, it can produce mild to serious burns and degradation of your clothing.

Irritating agents are also known as tear gas, pepper spray, or MACE. These agents affect the respiratory tract and cause mild to severe pain on skin contact. For the most part these agents are non-lethal, but could cause serious injury if the victims exposed have an underlying medical condition, "emphysema or asthma".

Immediately decontaminate yourself by removing contaminated clothing and flushing the area with water. Decontaminate with water only; do not use the bleach solution. Remember the patients clothing and all articles are considered potentially contaminated evidence. If possible, contain all run-off. If decontamination is a mass casualty and a large amount of water is used, flush the area with pool chlorine and don't recover it.

## **BLOOD AGENTS**

Blood agents include cyanide-based products, which are once again common to industrial facilities. The two common agents used are Hydrogen Cyanide (AC) and Cyanogen Chloride (CK). Cyanide can also be found in very low doses in apple seeds.

Both agents would most likely be used in a liquid form, because they will rapidly vaporize once released. Hydrogen Cyanide is lighter than air, while Cyanogen Chloride is heavier than air. Both agents smell like bitter almonds (peach pits).

They have an inhalation and a skin contact hazard. Once inhaled the effects are immediate. The victim will appear flushed, with reddish skin and possibly blue lips. Usually they will be gasping for air, which will lead to unconsciousness and then death, very rapidly if not treated. Decontaminate the patients by removing contaminated clothing, flushing with water and aeration. Moving the patients to fresh air and provide high flow oxygen. Remember the patients clothing and all personal articles are considered potentially contaminated evidence.

## **BLISTER AGENTS**

There are a number of Blister Agents:

- Mustard (H) (HD)
- Lewisite (L)
- Phosgene Oxime (CX)

Blister agents affect the respiratory tract and the skin. There are some differences in the agents and the effects on the body. All blister agents are heavier than air.

Mustard has the odor of garlic and appears as an oily liquid. Primarily it is designed for skin contact. The vapors can also cause blistering of the skin and can severely damage the lungs.

Mustard agents are absorbed rapidly into the skin and within a few hours you will start to notice reddening of the skin where the contamination occurred. Later the blisters will start to form.

Lewisite has the odor of geraniums. Its routes of entry include absorption and inhalation. Unlike Mustard agents, Lewisite causes immediate pain upon contact with the skin.

Phosgene Oxime has an irritating smell. Its routes of entry include absorption and inhalation. Like Lewisite, it will cause immediate pain upon contact with the skin.

It is recommended to use a 10:1 bleach and water solution for decontamination. Getting the agents off the skin as quickly as possible and flushing with water is very important. Remember the patient's clothing and all personal articles are considered potentially contaminated evidence.

## **NERVE AGENTS**

Nerve agents include:

- Tabun (GA)
- Sarin (GB)
- Soman (GD)
- VX

Nerve agents are some of the most toxic chemicals known to man. They are similar in nature to organophosphate pesticides, but with a much higher degree of toxicity. They are Super Hazardous Materials. All of the nerve agents are extremely fast acting. They have an inhalation and skin contact threat. VX is more of a skin hazard than inhalation hazard, but it can be an inhalation hazard if aerosolized.

They inhibit the build up of acetylcholine in the body. This stimulates every organ in your body and does not stop.

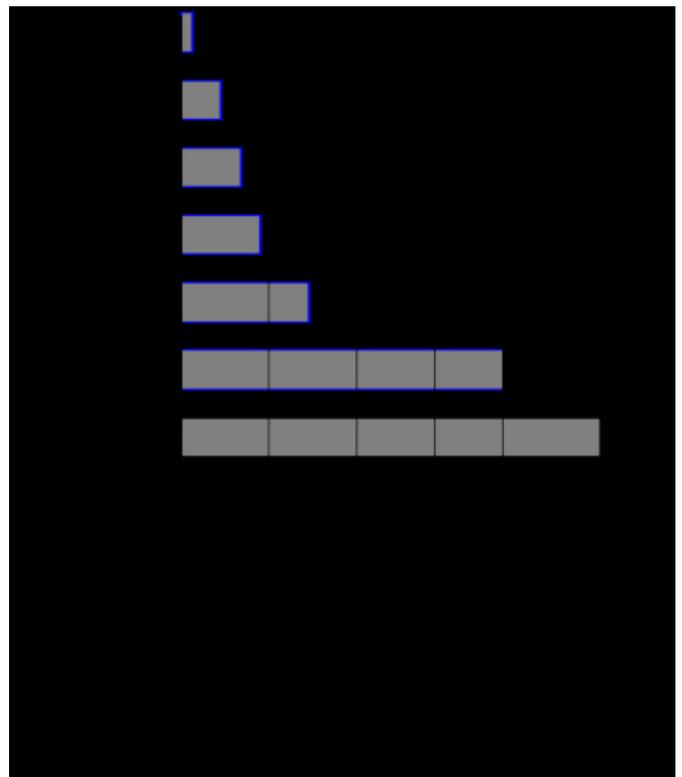
Tabun and Sarin have a fruity odor; Soman has camphor odor, while VX has a sulfur-like odor. In the pure state, Tabun, Sarin and Soman are colorless and only have a mild odor. VX may have a slight yellow color. All nerve agents are heavier than air.

First responders will determine that a nerve agent has been utilized in an attack by observing the signs and symptoms of the victims. Symptoms include but are not limited to, pinpointing of the pupils, diminishing vision, runny nose, difficulty in breathing, chest pain and seizures.

Remove all the victims clothing and flush them with a 10:1 bleach and water solution. Immediate injections of Atropine and/or 2-Pam chloride may help prevent death. Remember the patient's clothing and all personal articles are considered potentially contaminated evidence.

### **Figure 1**

Difference between Chlorine and the other Chemical Agents



## **RESOURCES**

- United States Department of Justice
- Center for Domestic Preparedness
- Office of Justice Programs Manuals

- United States Department of Transportation (DOT)
- United States Environmental Protection Agency (EPA)
- State of Alabama
- Emergency Management Agency
- Anti-Terrorism
- Personal Security Planning Guide
- (Alabama Dept of Public Safety)
- (Alabama National Guard)
- (Georgia Emergency Management)
- (The Federal Bureau of Investigations)
- (The Federal Emergency Management Agency)
- Alabama Department of Environmental Management (ADEM)
- The National Fire Academy
- Emergency Response to Terrorism
- The Mobile Alabama Fire-Rescue Department
- Chemical, Biological and Radiological
- Incident Response Guide
- The History Channel Special Reports and Documentaries
- Journal of American Medical Association August 1997
- Southern Poverty Law Center (SPLC)
- Militia Task Force

the same types of symptoms should be a clue of a possible Weapons of Mass Destruction or Hazardous Materials Incident.

- Structural Fire Gear with SCBA offers only LIMITED protection for Non-Extended Rescue Operations.
- Remember this is a CRIME SCENE and everything on the victim(s) is considered Contaminated Evidence.
- When dealing with a Bomb or Explosion, THINK SECONDARY DEVICE.
- Any explosion with minor damage, should be a clue that the device may have delivered some type of Chemical, Biological or Radiological Agent.

( MFRD CBR Incident Response Guide developed using the current Department of Justice (DOJ) and The 2000 Emergency Response Guidebook Guidelines.

#### **APPENDIX 4**

#### **APPENDIX 3: MOBILE FIRE RESCUE DEPARTMENT CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL INCIDENT RESPONSE GUIDE**

- Any Incident with more than one patient suffering



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