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PRESENTATION ON

CLANDESTINE LAB

CUFS 2416 EXPLOSIVE AND POST BLAST INVESTIGATION

B.SC. FORENSIC SCIENCE (SEM 6)
SCHOOL OF FORENSIC SCIENCES
BHUBANESHWAR CAMPUS

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CLANDESTINE LAB

- A clandestine laboratory or 'clan lab' is a place where illegal substances including drugs, explosives, biological or chemical weapons are manufactured or prepared.



TYPES OF CLANDESTINE LAB

Two most common types of labs:-

- Economic- based lab or "super lab"

Large-scale, highly organized labs generally tied to organized crime where explosives are produced for the purpose of exporting.

- Addiction-based lab or "user lab"

Small-scale, labs that generally produce just enough explosives for use by themselves and their close associates.



LOCATIONS OF CLANDESTINE EXPLOSIVE LABS

- Upscale single- and multiple-family dwellings
- Farms
- Rural properties
- Automotive shops
- Abandoned warehouses
- Car trunks
- Truck boxes

HAZARDS CAUSED DUE TO CLANDESTINE EXPLOSIVE LABS

- Fires and explosions due to solvents or a high concentration of gases
- Health consequences
- Poisoned air
- Contaminated well water
- Chemicals that ignite when exposed to air or water
- Leaking and/or damaged compressed gas cylinders
- Oxygen deficient
- Damaged explosives

SIGNS OF CLANDESTINE EXPLOSIVE LABS

- Odours: Pungent smells.
- Windows: Covered, blacked out, or with the curtains always drawn.
- Vents: Staining around vent, extreme corrosion
- Garbage: Explosives containers, bottles, metal drums, fibre (cardboard) barrels.
- Containers: Labels have been removed or spray painted over.
- Landscaping: Burn pits, dead vegetation indicating dumped waste.

- Glassware: Laboratory glassware.
- Security: Extensive security measures or attempts to ensure privacy including cameras set-up, several locks on exterior doors, and "beware of dog" signs.
- Residents: Either only home occasionally and for short periods of time or seem to always be home and never leave the house.
- Behaviour: Appear secretive about their activities and display paranoid or odd behaviour.
- Strategic: Garbage is rarely put out or put out in another neighbour's collection.
- Visitors: Arrive during odd hours and for short periods of time.

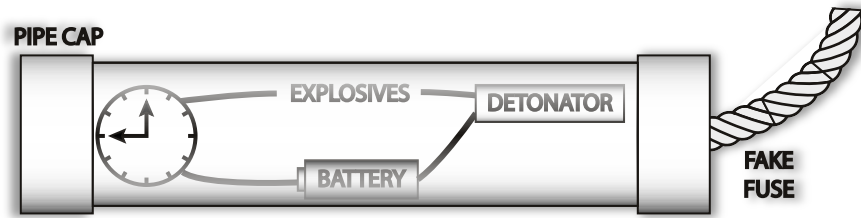
EXPLOSIVE MANUFACTURED IN CLANDESTINE LAB

I. PIPE BOMB

- It has tightly sealed section of pipe filled with an explosive device.
- Simple low explosive can be used to produce a relatively huge explosion.
- Due to the containment causing increased pressure, and the fragmentation of the pipe itself creates potentially lethal shrapnel.



Construction -

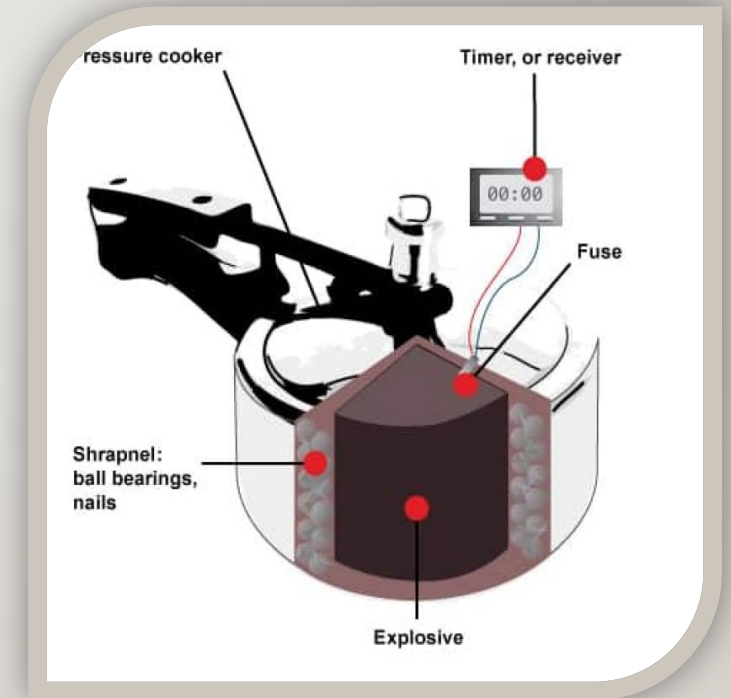


- Explosive mixtures that the builder can more readily obtain themselves are used, such as gun powder, match heads, or chlorate mixtures.
- Sparks generated when packing the material inside the tube or attaching the end caps, causing many injuries or deaths amongst builders also known as premature detonation.
- Sharp objects such as nails or broken glass are sometimes added to the outer shell or inside of the bomb to increase potential injury, damage, and death.

2. PRESSURE COOKER BOMB

Construction –

- Pressure cooker bombs are relatively easy to construct. Most of the materials required can be easily obtained.
- The bomb can be triggered using a simple electronic device.
- The power of the explosion depends on the size of the pressure cooker and the amount and type of explosives used.
- Explosive materials such as TNT and dynamite are placed inside the pressure cooker. Next, nails, ball bearings or other shrapnel surround the explosive materials.



3. MOLOTOV COCKTAIL - TYPE BOMBS

- A Molotov cocktail is a hand thrown incendiary weapon constructed from a fragile container filled with flammable substances sealed with a cloth wick. The wick is usually soaked in alcohol or kerosene rather than petrol.
- While using it the wick attached to the container is lit and the weapon is thrown.
- This ignites the flammable substances contained in the bottle and spreads flames as the fuel burns.



4. AMMONIUM NITRATE AND ALUMINIUM POWDER

- Ammonal is an explosive made up of ammonium nitrate and aluminium powder
- 82% ammonium nitrate and 18% aluminum powder makes it a fairly good explosive in terms of power.
- The ammonium nitrate functions as an oxidizer and the aluminium as fuel.
- The ammonium nitrate hygroscopic in nature.
- Ammonium nitrate in this has to be used in powder form and not in the prill form
- The detonation velocity of ammonal is approximately 4,400 metres per second or 9,842 miles per hour.

5. CAR BOMB/TRUCK BOMB

- Car bombs can be roughly divided into two main categories: those used primarily to kill the occupants of the vehicle and those used as a means to kill, injure or damage people and buildings outside the vehicle.
- Car bombs are activated in a variety of ways, including opening the vehicle's doors, starting the engine, remote detonation, depressing the accelerator or brake pedals or simply lighting a fuse or setting a timing device.



- The gasoline in the vehicle's fuel tank may make the explosion of the bomb more powerful by dispersing and igniting the fuel.

Construction -

- A small tube made of glass or plastic. One end of tube will be filled with mercury, while the other open end is wired with the ends of an open circuit to an electrical firing system.
- If the fuse prepared moves or is jerked, the supply of mercury will flow to the top of the tube and close the circuit.
- Thus, as the vehicle goes through the regular bumping and dipping that comes with driving over a terrain, the circuit is completed and the bomb or explosive is allowed to function.

6. RACK-A-ROCK EXPLOSIVE

- The Rack-a-Rock explosive were first discovered in 19th century by a man called Silas Divine.
- Rack-a-Rock" consisted of potassium chlorate and nitrobenzene. It was provided in the form of permeable cartridges of the chlorate, which were placed in wire baskets and dipped in the nitrobenzene for a few seconds before use.
- This is 10 parts of sodium chlorate and 1 part of nitrobenzene.
- This turns out to be a powerful explosive and easy to make.

7. ARMSTRONG'S MIXTURE –

- Armstrong's mixture is a highly sensitive primary explosive. It is very friction-sensitive.
- It consists of 67% potassium chlorate, 27% red phosphorus, 3% sulphur, and 3% calcium carbonate.
- Armstrong's mixture has been used in thrown impact-detonated improvised explosive devices, made simply by loading it into hollow balls.
- It also was seen in various patents for matches, novelty fireworks, and signaling devices.

THINGS TO REMEMBER IF YOU ENCOUNTER A CLANDESTINE LAB

- Evacuate the premises
- Do not touch or inhale anything
- Do not turn on or off electrical power switches or light switches
- Do not open or move containers
- Do not disconnect power or water inside or to the building
- Decontaminate yourself and your clothing and wash your hands and face thoroughly

EXAMINATION OF CRIME SCENE

- Scenes suspected of being clandestine explosive laboratories should not be entered until a safety assessment has been conducted by an appropriately qualified individual.
- Major safety hazards are explosions from devices (including booby-traps) or explosive materials and chemical hazards.
- Safety must also be considered constantly during an examination.
- Explosives chemists have a significant role in the examination of clandestine explosive laboratories by providing chemical information, safety advice, and an assessment of what has occurred within the site.
- Major considerations for an explosives chemist in the examination of the scene will include contamination prevention (or minimization), the safe collection of samples, and the potential for other forensic evidence.

THANK YOU.

