



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
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PRESENTATION ON

# *INTIATION TECHNIQUES AND INITIATING DEVICES*

**CUFS 2416 EXPLOSIVE AND POST BLAST INVESTIGATION**

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

# CONTENT

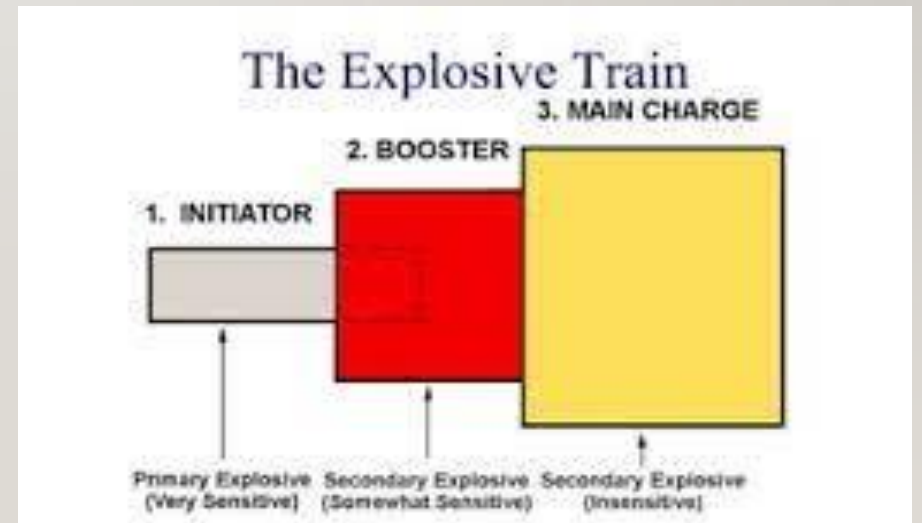
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- Introduction
  - Explosive train
  - Low explosive train
  - High explosive train
  - Dynamites
  - Detonators
  - Safety fuse
- Applications

# EXPLOSIVE TRAIN

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- An explosive train is also called as firing train.
- An explosive train is a sequence of events which begins with relatively low level of energy that causes a chain reaction to initiate the final explosive or main charge.
- It is divided into two types
  1. Low explosive train.
  2. High explosive train



# LOW EXPLOSIVE TRAIN

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- For example:- Rifle cartridge which consists of
- A primer consisting of a small amount of primary high explosive which initiates the explosive train.
- An igniter which is initiated by the primer and creates a flame that ignites the propellant.
- As the propellant consisting of a secondary low explosive that emits a large amount of gas as it deflagrates .

# HIGH EXPLOSIVE TRAIN

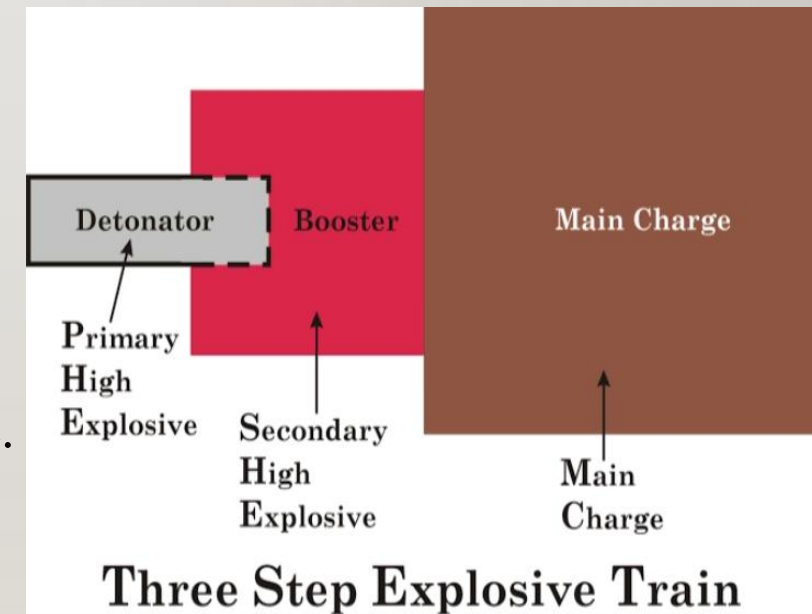
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- High explosive train are two types

1 . Detonators    2 . Dynamites

## Detonators

- Detonators containing primary explosive.
- Primary explosives require small quantity of energy to initiate.
- These are extremely sensitive to heat , shock, and friction.
- Eg :- Lead Azide ,mercury fulminate .



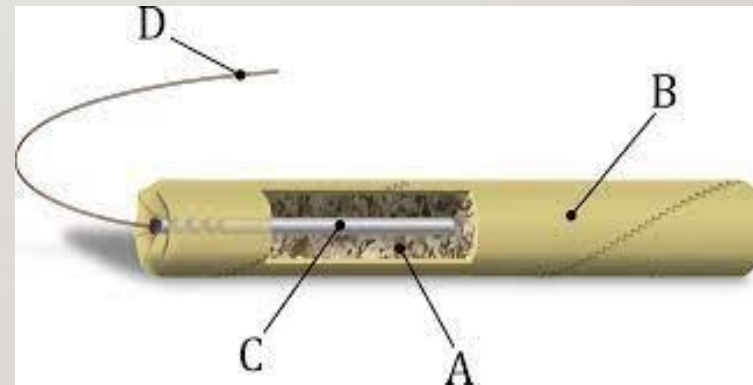


# DYNAMITES

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- Dynamites containing secondary explosive.
- These are insensitive to shock ,heat, and friction.
- These are less sensitive than primary explosive.

Eg :- PETN ,TNT,RDX .



## Dynamite contains :-

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**Primary component:** - High explosive train includes 3 primary high explosive components which are used to initiate explosive. (fuse, primer, Detonator).

**Secondary components:** - Secondary high explosive components contains boosters.

Eg :- TNT,PETN,HMX etc.

**Tertiary components:-** These are main charges . Eg :- TNT, PETN, HMX

- As main charge is insensitive sometime so explosive boosters is used to deliver a sufficient shock wave to initiate the main charge as so full detonation occurs.

Eg :- ANFO

# DETONATORS

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- A Detonator is a device used to trigger an explosive device.
- It may be in different ways such as impact , friction , electricity, heat etc.
- Detonator is the transmission through an explosive substance at the speed of 3000 to 9000 meters per second.
- Detonators containing primary explosive. They require small quantity of energy to initiate. They are extremely sensitive to heat, shock and friction.
- Eg :- lead Azide , mercury fulminate.

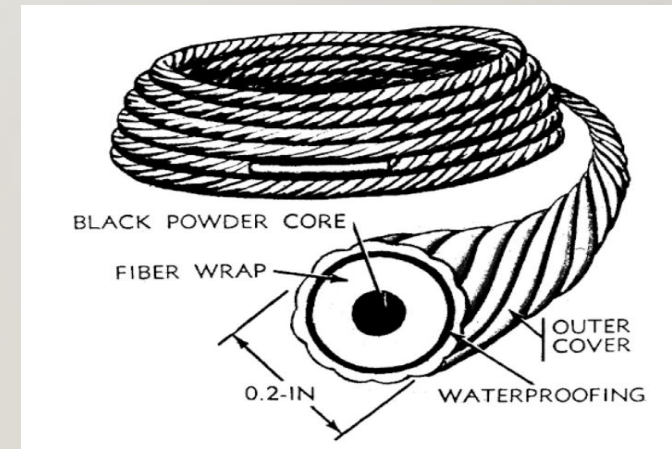




# SAFETY FUSE

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- Safety fuse introduction by William Beckford in the year 1831.
- It is a hollow cord filled with a mixture resembling black powder and designed to propagate burning at a slow and steady rate .
- Originally it consisted of a tube of gunpowder surrounded by waterproof varnished jute rope.
- The safety fuse burns at the rate of typically about 30 second per foot.



**THANK YOU**

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