

PRESENTATION ON

HEAT GENERATING PYROTECHNICS

CUFS 2416 EXPLOSIVE AND POST BLAST INVESTIGATION

B.SC. FORENSIC SCIENCE (SEM 6)

SCHOOL OF FORENSIC SCIENCES

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WHAT IS PYROTECHNICS ?

- Pyrotechnic composition is a substance or mixture of substances designed to produce an effect by heat, light, sound, gas/smoke or a combination of these, as a result of non-detonative self-sustaining exothermic chemical reactions.
- Pyrotechnic is derived from Greek word pyr- “fire”, techne- ”art”.
- Pyrotechnic is invented by Liuyang, China



HEAT GENERATION PYROTECHNICS

Fuses composition in Pyrotechnics

- These are used in various applications for example –
 - First fires of Pyrotechnics
 - As primers
 - Heat generators/generating devices
 - As propellants in gas generators
- Pyrotechnics which are used in primers and first fires are more sensitive than the once using heat generating devices.
- The sensitivity of compositions can be controlled by reducing amount of oxides or by choosing less sensitive oxides.



Primers

- Primer composition are often used as gun propellants
- The primer emits the burst of flame when it is struck by metal firing pin igniting the gun propellant.
- The primer composition are therefore to initiation and are capable of generating heat and shock and to reduce sensitivity composition can be used in paste form.

First fires

- **First** fire composition are used to ignite other compositions which are less sensitive to initiation
Ex:- Black Powder moistured with water containing dextrin and poured on top of firework composition
- The fuse of blue touch paper ignites the black powder which inturn ignites the main charge
- The other first fire composition can be
-Barium peroxide, silicon, potassium nitrate, magnesium, titanium



APPLICATIONS

- In activating galvanic cells containing solid fusible electrolytes
- In metallurgic industry to prolong the molten state of metal
- Basically heat generating composition contains zinc, manganese, zirconium and are initiated by impact and friction.

THANK YOU

