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UNIVERSITY

*Shaping Lives...
Empowering Communities!*

PRESENTATION ON
***PYROTECHNICS: LIGHT
GENERATING***

CUFS 2416 EXPLOSIVE AND POST BLAST INVESTIGATION

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

CONTENT

- Introduction
 - A) Pyrotechnic definition.
 - B) How deflagration of fireworks occur.
 - C) Chemical compounds responsible for emission of colors.
- Applications

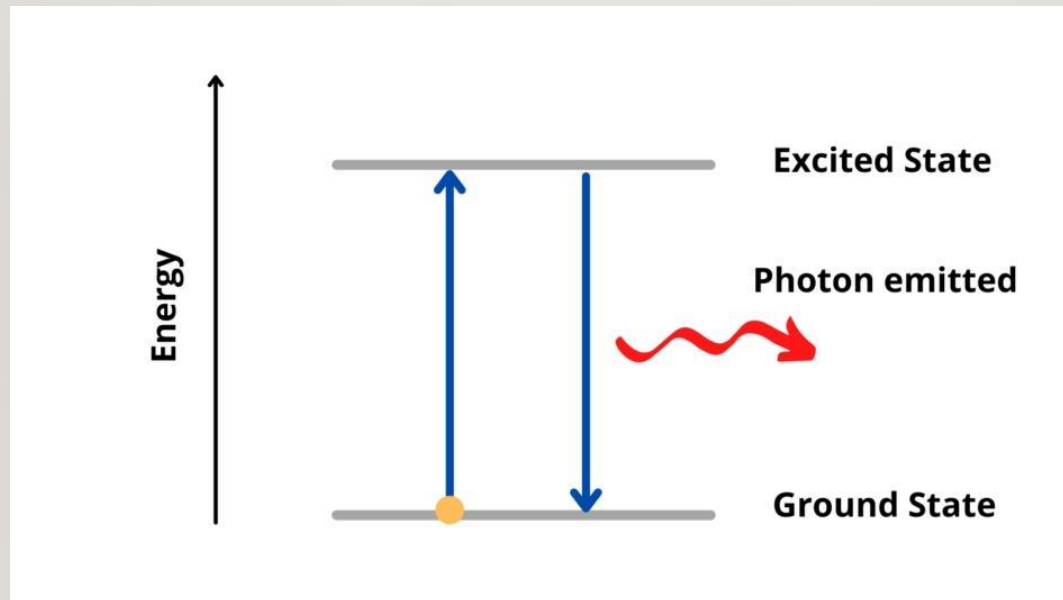
PYROTECHNICS: LIGHT GENERATING

Pyrotechnics:

- Pyrotechnics are the art of making or the manufacture and use of fireworks.
- The person who is responsible for safe storage, handling, functioning of pyrotechnics and pyrotechnic devices is called pyrotechnician.



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- The light is produced by the electrons inside the metal atom in visible region.



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- Pyrotechnic composition contains nitrates and perchlorates as oxidisers and alkaline earth metal i.e magnesium, aluminium, zirconium and titanium as fuels.
 - The temperature must be greater than 3000k in order to generate light in visible region.



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- Pyrotechnic colorant is a chemical compound which causes a flame to burn with a particular color.
 - The color of the flame is dependent on the metal cations such as barium, copper, etc.
 - The anions influence the flame temperature.

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- Red – strontium chloride [SrCl_2], strontium sulphate [SrSO_4], strontium carbonate [SrCO_3], etc.
 - To achieve higher temperature aluminium and magnesium can be used which emit white light. Titanium and zirconium are good elements for emission of white light.



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- Blue – copper compounds



- Green – barium compounds



- Purple – combination of red and blue



APPLICATIONS

- Used in fireworks.
- Used in safety matches.
- Oxygen candles.
- Gas pressure blasting in mining.
- Quarrying.
- Demolition.

REFERENCES

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THANK YOU.

