



## Firecrackers - The Mechanism, Regulations & Impacts

### What is the issue?

\n\n

- \n
- Supreme Court has recently banned the sale of firecrackers in Delhi-NCR.
- \n
- But research on crackers & its impact is lacking in the country.
- \n

\n\n

### How has CPCB's position been?

\n\n

- \n
- In 2016, a great smog enveloped Delhi for days after Diwali.
- \n
- SC mandated the Central Pollution Control Board (CPCB) under the Ministry of Environment, to study the effects of firecrackers.
- \n
- CPCB noted that the competence for such a study lies with the Petroleum and Explosives Safety Organisation (PESO) - the explosives regulator under the Commerce Ministry.
- \n
- It nevertheless did review existing literature on the subject and put together a summary.
- \n
- It listed the health impacts of fireworks, delved into the chemical processes involved, and the toxic substances that are released.
- \n

\n\n

### What is the Chemistry of fireworks?

\n\n

- \n
- Explosive fireworks depend on four primary ingredients — oxidiser, fuel, colouring agents & binder.
- \n
- The oxidisers in fireworks are chemicals that release oxygen to allow the explosion to take place. Ex: Nitrates, chlorates.
- \n
- The fuel for burning is usually charcoal.
- \n
- Colouring agents impart desired colours like aluminium compounds for brilliant whites, barium nitrate for greens.
- \n
- Binders are used to hold the mixture of the firework together in a paste while burning.
- \n
- Also, other metals like titanium & strontium are added to regulate the speed of the burning reaction.
- \n

\n\n

### **What are the existing guidelines?**

\n\n

- \n
- Currently, guidelines exist for four types of explosive firecrackers — atom bombs, Chinese crackers, garland crackers and maroons.
- \n
- The guidelines for these were drawn up by PESO in 2008 after the Supreme Court ordered it to regulate regarding their composition.
- \n
- According to these guidelines, the sulphur, nitrate & aluminium powder contents must not exceed 20%, 57%, & 24% respectively.
- \n
- In July 2016 the SC ordered that no firecrackers shall contain antimony, lithium, mercury, arsenic and lead.
- \n

\n\n

### **What are the studies that establish health risks?**

\n\n

- \n
- Studies in Europe, Canada and China have established links between fireworks bursting and variations in air quality.

\n

- A 2014 study on 'Impact of Fireworks on Respiratory Health', in India, showed an increased risk of asthma & cancers due to crackers.

\n

- A 2007 study published in 'Atmospheric Environment' magazine established that children were at a greater risk due to cracker enhanced particulate matter in the air.

\n

\n\n

\n\n

**Source: Indian Express**

\n



**IAS PARLIAMENT**

*Information is Empowering*

A Shankar IAS Academy Initiative