

1. Supreme Court's Nationwide Ban on certain cracker ingredients

Introduction

The Supreme Court has extended its ban on certain firecracker ingredients to cover the entire country, not just the National Capital Region (NCR). This decision was made during a recent court hearing.

Firecracker Regulations

In October 2018, the apex court had banned the production and sale of all crackers except 'green crackers' and those with reduced emissions (improved crackers). It also banned the manufacture and sale of 'joined crackers' (long rows of crackers joined together), prohibited the use of barium salts in fireworks and said their noise levels should be within permissible limits. The court reiterated this in its October 29, 2021 order.

In 2020, the National Green Tribunal had banned the sale and use of all kinds of firecrackers in NCR, and said that green crackers would be permitted only in cities and towns where air quality was moderate or poor.

What is a firecracker made of?

Firecrackers typically consist of four primary ingredients — oxidiser, fuel, colouring agents, and binder. An oxidiser is required for the cracker to catch fire, the fuel sustains the fire, colouring agents give it the colours and sparkles, while the binder holds this mixture in place till the cracker has spent itself.

COLOURS OF HAZARD

Chemical compounds used as colourants in fireworks,
and their impact on health

BLAZING REDS	Lithium compounds	Toxic, irritating fumes when burnt
GLITTERING GREENS	Barium nitrate	Can irritate respiratory tract, have possible radioactive fallout
BRILLIANT WHITES	Aluminium	Contact dermatitis, bioaccumulation
BLUES	Copper compounds	Cancer risk, bioaccumulation
GLITTER EFFECTS	Antimony sulphide	Toxic smoke, possible carcinogen

Chemicals like barium are colouring agents, and were banned because of their harmful impact on human health, such as irritation in the respiratory tract, skin allergies, breathing difficulties, and even cancer.

The white colour in a cracker is emitted through aluminium, magnesium and titanium, while the orange colour is carbon or iron. Similarly, yellow agents are sodium compounds while blue and red are copper compounds and strontium carbonates. The green agent is barium mono chloride salts or barium nitrate or barium chlorate.

Green Crackers

As compared to conventional crackers, Green crackers on burning produce at least 30% less Particulate Matter (PM) and gaseous emissions (minimum 20% reduction in PM and 10% reduction in gaseous emissions such as sulphur dioxide, nitrous oxide and others). Green crackers need not necessarily be crackers with completely new constituents. The conventional crackers can also be made green by making some changes in the existing chemical composition.

Accordingly, green crackers can be categorised into two groups:

1. **Improved fireworks or firecrackers:** The conventional crackers can be upgraded to green crackers by using lesser amounts of raw materials, reduction in the shell size (Covering in which combustible material of a cracker is kept), elimination of ash usage (ash is used as a drying agent to absorb moisture from crackers) or by addition of dust suppressants. By making these upgradations, the resultant crackers are required to attain the desired level particulate matter and gaseous emission reductions.

For instance, the 'green' version of the 'flower pot', one of the most popular fireworks, has a mixture of water and lime that is chemically stored in the cracker. When lit, the burning triggers release of moisture which wets the dust-and-smoke particles.

2. **New formulation fireworks or firecrackers:** These crackers are developed by using new formulations. The new formulations are also required to attain particulate matter and emission reductions.

Development of these crackers

The National Environmental Engineering Research Institute (NEERI), a part of the Council of Scientific and Industrial Research (CSIR), is the primary body which was assigned responsibility for the development of green crackers. NEERI-CSIR worked with labs for the development of green crackers. After development of green crackers, the process to manufacture such crackers was passed on to the existing traditional cracker manufacturers.

Names of Green Crackers

Popular green crackers are Safe Water Releaser (SWAS), Safe Thermite Cracker (STAR) and Safe Minimal Aluminium (SAFAL). SWAS crackers release water vapour along with air in certain cases. The water vapour acts as a dust suppressant and dilutes the gaseous emissions.

SWAS and STAR crackers specifically eliminate the usage of the harmful chemicals such as barium nitrate, sulphur and nitrous oxides. SAFAL crackers minimise the usage of aluminium by replacing it with magnesium and magnesium-based compounds (Aluminum is used only as a flash powder for initiation). This leads to a reduction in particulate matter by 35 to 40%.

All these crackers have sound intensity similar to that of conventional crackers in the range of 105-110 dBA. Thus, the green crackers, even though are less polluting, do not compromise on the sound levels.

Further, the green crackers are also cost effective as they cost 20 to 30% less than the conventional crackers.

Relevance: GS Prelims & Mains Paper III; Environment

Source: The Indian Express

2. Electoral Bonds and Electoral Trusts: Comparison

After a three-day hearing, the Supreme Court on November 3 reserved its judgment on the challenge to the central government's Electoral Bonds Scheme.

Before the controversial Electoral Bonds (EB) Scheme was introduced in 2018, there was something called an Electoral Trusts (ET) Scheme, which was introduced by the UPA government in 2013.

Both schemes were meant to facilitate donations to political parties by corporates and individuals. But while the EB scheme seeks to ensure anonymity for the donor, the electoral trusts under the previous scheme were required to submit to the Election Commission of India a report on contributions from individuals and companies, and their donations to parties every year.

What are electoral trusts?

Under the scheme notified by the UPA-2 government on January 31, 2013, any company registered under Section 25 of the Companies Act, 1956, can form an electoral trust.

Under Section 17CA of the Income-tax Act, 1961, any citizen of India, a company registered in India, or a firm or Hindu Undivided Family or association of persons living in India, can donate to an electoral trust.

The electoral trusts have to apply for renewal every three financial years. They must donate 95% of contributions received in a financial year to political parties registered under the Representation of the People Act, 1951. The contributors' PAN (in case of a resident) or passport number (in case of an NRI) is required at the time of making contributions.

Transparency under Trusts and Bonds

The electoral trusts route is transparent on contributors and beneficiaries. Where there is only one contributor and one beneficiary of a particular trust, the public can know for sure who is funding whom. For instance, in 2018-19, the Janhit Electoral Trust had just one contribution of Rs.2.5 crore from Vedanta, and the entire amount was donated to the BJP, as per the trust's annual contribution report.

However, if there are multiple contributors and recipients of donations, it cannot be specified which company is funding which party. So, Prudent Electoral Trust, which was known as Satya Electoral Trust before 2017, received contributions from a host of companies such as DLF, GMR, and Bharti Airtel, as well as several individuals, and donated to a range of national and regional parties. But it is difficult to pinpoint which donor gave to which party.

Electoral bonds, on the other hand, are exempt from disclosure requirements. Parties inform the ECI of the aggregate donations received through EBs, but give no details of the donors.

The government argues that this lack of transparency in donations through EBs is to maintain the privacy of donors.

Amount of Donations

Data from nine financial years (2013-14 to 2021-22) show that political funding through the two government schemes shot up after the introduction of EBs, with the bulk of donations coming through the newer scheme.

Relevance: GS Prelims & Mains Paper II; Governance

Source: The Indian Express

3. India's Energy Conservation Building Code, 2017

Why in news?

Paris-based International Energy Agency (IEA), in its World Energy Outlook 2023, report has highlighted that India's Energy Conservation Building Code (ECBC), 2017 for commercial buildings sets it apart from other developing economies where "energy efficiency in buildings stands out as a laggard".

What is ECBC?

The ECBC was first released by the Ministry of Power's Bureau of Energy Efficiency (BEE) in 2007, followed by an update in 2017. ECBC sets minimum energy standards for commercial buildings, with the objective of enabling energy savings of between 25 and 50 per cent in compliant buildings. The code is applicable to commercial buildings like hospitals, hotels, schools, shopping complexes, and multiplexes which have a connected load of 100 kW or more, or contract demand of 120 kVA or more.

It primarily looks at six components of building design including envelope (walls, roofs, windows), lighting systems, HVAC systems, and electrical power system, and the requirements under each of these components are split between mandatory and prescriptive. ECBC is for both new buildings and retrofitting existing buildings. Compliant buildings are assigned one of three tags in ascending order of efficiency, namely ECBC, ECBC Plus, and Super ECBC.

Compared to ECBC, 2007, the updated 2017 code has additional priorities of renewable energy integration, ease of compliance, inclusion of passive building design strategies, and flexibility for the designers.

While ECBC acts as a national standard, states across India have the flexibility to modify the code depending on unique regional needs. To enforce the code, states have to draft rules and notify them as state laws.

Implementation in States

Although 23 out of 28 states have notified ECBC rules, only 15 states have notified rules based on the latest ECBC, 2017. These include states like Uttar Pradesh, Punjab, Karnataka, Andhra Pradesh, Telangana, and Kerala.

Five states — Gujarat, Maharashtra, J&K, Ladakh, and Manipur — are yet to notify ECBC rules. By delaying the notification of ECBC rules, these states stand to lose out from the benefits of ensuring energy efficiency in commercial buildings.

State Energy Efficiency Index

Bureau of Energy efficiency (BEE) published the State Energy Efficiency Index (SEEI) in 2022, which rated states on various parameters of energy efficiency. As per the index, Karnataka was the top state in SEEI's ratings for energy efficiency in buildings receiving 22.5 points out of a total of 25. It was followed by Telangana, Haryana, Andhra Pradesh, and Punjab as the top five large states with the best scores. Bihar was given the lowest

score of 0.5 points. With Bihar, states like Odisha, West Bengal, Tamil Nadu, and Jharkhand were the five worst rated states for energy efficiency in buildings.

Relevance: GS Prelims & Mains Paper III; Environment

Source: The Indian Express