

*Government of Jammu & Kashmir*  
**Office of the Commissioner Food & Drug Administration**  
**Drugs & Food Control Organization, J&K Civil Secretariat, Jammu/  
Srinagar**

**ADVISORY FOR FOOD BUSINESS OPERATORS / Consumers ON  
ARTIFICIAL FRUIT RIPENING**

Fruit ripening is a combination of physiological, biochemical and molecular processes which makes the fruit edible, palatable and nutritious. It happens naturally and may also be induced or controlled. According to the ripening pattern, fruits are classified into two categories, viz.

1. **Non-climacteric Fruits:** Fruits which are usually harvested after ripening and full maturity, such as Lemon, Orange, Grape, Cherry, Pineapple etc.
2. **Climacteric Fruits:** Fruits which are harvested at full maturity and can be further ripened during transit or storage like Banana, Guava, Avocado, Mango, Apple, Pear, Apricot, Peach and Tomato etc.

Artificial ripening is the process by which ripening is controlled to achieve desired characteristics intended for better consumer acceptance. Fruit trade involves transporting fruits to distant places. Highly perishable fruits such as mango, papaya, banana, etc. cannot be stored and transported to long distances after ripening as they tend to spoil. Therefore, to avoid spoilage of fruit during transportation, traders generally harvest raw fruits and ripen them artificially at the destination market before sale.

Considering the issue of use of **banned calcium carbide** and non-availability of alternative ripening agent, Food Safety & Standards Authority of India (FSSAI) permitted the use of ethylene gas for ripening of fruits in India vide notification dated 23.08.2016, subject to adherence to the SoPs by the Food Business Operators (FBOs).

A detailed SoP for use of Ethylene gas for artificial ripening has been notified by FSSAI and available at the official website <https://fssai.gov.in/cms/guidance-notes.php>.

Accordingly, all the FBOs dealing with storage/packaging/distribution/ sale of Fruits & Vegetables are advised to strictly adhere to the following guidelines during and post artificial ripening treatment to ensure safe and compliant ripening practices , falling which penal action as warranted under FSS Act2006 shall be initiated :

1. **CARBIDE GAS OR ACETYLENE GAS: - Artificial Ripening with Calcium Carbide, popularly known as 'Masala' has been strictly banned in terms of sub-regulation 2.3.5 of Food Safety & Standards (Prohibition and Restrictions on Sales) Regulation, 2011, due to its potential health hazards.**
2. **Ethylene Gas:** Ethylene is a hormone produced naturally within the fruits to stimulate ripening process. Ethylene, being a natural hormone does not pose any health hazard to consumers.
  - a. Ethylene gas, ethanol, ethephon, etc. can be used on fruits to trigger the ripening process in fruits, under controlled conditions of Humidity, Temperature and Exposure Time.
  - b. Any source of ethylene gas coming in direct contact with fruits is not permitted.
  - c. Only approved source of Ethylene Gas is allowed to be procured and used, besides ensuring authenticity/purity of the sachets containing **ethephon** in powdered form and other components.
  - d. Only those sachets must be used that are properly labelled mentioning details of manufacturer, composition, instructions for use etc.
  - e. Use Ethylene Gas for artificial ripening can be done upto the concentration of 100 ppm (100 µl/L) only.
  - f. Fruit should not occupy more than 75% of the volume of the chamber (as well as crate) during the treatment.
  - g. Gas leakage monitoring system should be installed in the commercial ripening chambers.
  - h. Stacking of boxes should be done keeping minimum 4-6 inches space from the walls and between the adjacent crates.

For detailed guidance note all the stakeholders are advised to visit [https://www.fssai.gov.in/upload/uploadfiles/files/Guidance\\_Note\\_Ver2\\_Artificial\\_Ripening\\_Fruits\\_03\\_01\\_2019\\_Revised\\_10\\_02\\_2020.pdf](https://www.fssai.gov.in/upload/uploadfiles/files/Guidance_Note_Ver2_Artificial_Ripening_Fruits_03_01_2019_Revised_10_02_2020.pdf)

Consumers also are advised to remain vigilant in the market and purchase fruits from known sellers/reputed stores/dealers who declare that fruits sold have not been ripened using harmful/banned chemicals and to wash fruits thoroughly with potable water before its use/consumption to ensure its safety and quality.



**(State Nodal Officer)**

O/o Commissioner, FDA, J&K.

Drugs & Food Control Organization, J&K.

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Copy to the:-

1. Director Information and PR, J&K, for information with the request to publish the above said Advisory in all leading dailies of J&K.
2. Director (RCD), FSSAI, New Delhi, for information.
3. Deputy Commissioner, Food Safety, Jammu/Kashmir for information.
4. All Designated Officers, Food Safety Officers for information and necessary action.
5. Private Secretary to the Secretary to the Government, Health and Medical Education Department, for kind information of the Secretary.
6. Office Record file.