

RIPENING OF FRUITS

Press Release

Dated, March 10, 2023: Ripening of fruits is a natural phenomenon that makes the fruits edible, palatable, and nutritious for the consumers. Similarly, artificial ripening is a process by which fruits are ripened artificially in a controlled manner to achieve desired outcome like optimum ripening and better consumer acceptance apart from ensuring a longer shelf life of fruits. Artificial ripening also facilitates the transportation of fruits like mango which becomes soft and perishable after ripening as the fruits are transported to distant places in unripe conditions to avoid losses and are artificially ripened at the destination market before sale.

However, due to the presence of traces of arsenic and phosphorus which is harmful to humans and may cause dizziness, frequent thirst, irritation, weakness, difficulty in swallowing, vomiting, skin ulcer, etc., FSSAI has prohibited the use of Calcium carbide also known as '*Masala*' as a ripening agent for artificial ripening of the fruits as per the provision in sub-regulation 2.3.5 of Food Safety and Standards (Prohibition and Restrictions on Sales) Regulation, 2011.

Acetylene gas released from calcium carbide is equally harmful to handlers. There are chances that calcium carbide may come in direct contact with fruits during application and leave residues of arsenic and phosphorus on fruits. Thus, the use of this chemical for the ripening of fruits is **banned** in India. Accordingly, in order to ensure that fruit ripening is strictly regulated as per the permitted practices through the use of approved sources of ethylene only, FSSAI has recognized '*ethylene*' as a safe ripening agent at a concentration up to 100 ppm (100µl/L) depending upon the crop, variety, and maturity through sources like *ethephon*, *ethereal* etc. Treatment of unripe fruits with ethylene gas triggers the ripening process until the fruit itself starts producing ethylene in large quantities. However, it has been further directed that such material should also not come in contact directly with the fruits to be ripened artificially.

A Standard Operating Procedure (SOP) detailing all aspects of the artificial ripening of fruits by ethylene gas has already been issued by FSSAI and is available on the following link:
https://www.fssai.gov.in/upload/uploadfiles/files/Guidance_Note_Ver2_Artificial_Ripening_Fruits_03_01_2019_Revised_10_02_2020.pdf

However, despite the above directions it has been brought to the notice of FSSAI that the traders/handlers are still indulging in use of prohibited material i.e. Calcium Carbide or are using the approved sources of ethylene gas in an incorrect manner like dipping the fruits in ripening agent solutions which may render the fruits unsafe for human consumption.

Therefore, all the traders'/fruits handlers/FBOs operating ripening chambers are directed to strictly comply with the above directions and refrain from using any prohibited material or deploying approved sources of ethylene in an incorrect manner for artificial ripening of the fruits. Any such incidence, noticed, shall be dealt stringently and serious action will be taken against the person(s)

indulging in such unlawful practices as per the provisions of FSS Act, 2006 and Rules/Regulations made thereunder.

Further, in case any use of Calcium carbide (Masala) or any wrong practice of using ripening agents for artificial ripening of fruits is noticed by the consumers, the same may be brought to the notice of concerned State Commissioners of Food Safety for taking action against such violators. The details of the Commissioners of Food Safety of all States/UTs are available on the below-mentioned link: <https://www.fssai.gov.in/cms/commissioners-of-food-safety.php>
