



# Light-Induced Flavor

## What is it?

The light-induced flavor defect is caused by the breakdown of protein in milk when exposed to light, including sunlight, daylight or fluorescent light. The resulting flavor is described as a tallowy, burned-cabbage flavor, which becomes more objectionable with time.

## What causes it?

- Light intensity in the range of 350-500nm wavelengths are considered the source of most light-induced flavor. The more intense the light, the more rapid the deterioration.
- Clear plastic containers and glass bottles offer the least protection from light rays. As little as 20 minutes exposure to direct sunlight may cause an off-flavor in milk.
- Use of fluorescent lighting in store dairy cases and cold storage rooms is a prime source of the problem.
- Infrequent rotation and re-stocking of product in dairy cases increases exposure time to fluorescent light.

## Prevention

- Reduce light intensity in the store dairy cases. Although intensity varies, some open, vertical dairy cases allow maximum exposure to light.

- Installation of integrated dairy product cold storage rooms and closed dairy cases help maintain product temperature at 38 Degrees Fahrenheit or below; swing doors in the front of the case prevent continued loss of cold air when opening and stimulate product removal from the front row instead of back shelves for freshest product. Lighting in closed dairy cases is also minimal, with fluorescent tubing between doors and incandescent lighting overhead.

- Fluorescent lights should be turned off overnight and anytime the store is closed to lessen exposure time. Optional fluorescent lighting with yellow tubes, or those with green plastic film, reduce incidence of light-induced flavor.

- Proper rotation of containers in the dairy case and daily re-stocking should be done to keep product moving and enhance the visibility of the dairy case. Fluid milk purchased by customers should not be more than five days old. Check product codes for maximum 10 day sell-by dates.

- Modifications in the clear plastic jug to include dark colored pigments (blended with other colors or as a surface coating), or light blocking agents would help protect milk from light rays.

**Milk Flavor Program**

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Flavor Analysis

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