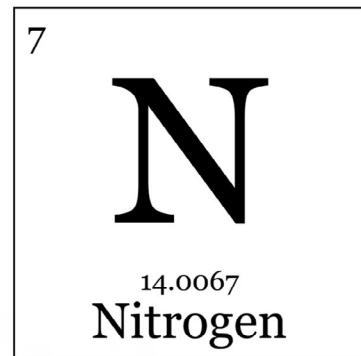


# Nitrogen in Food and Beverage Packaging



Nitrogen is an inert gas that makes up 78% of the Earth's atmosphere. Nitrogen is colourless, odourless and tasteless. It is a non-toxic substance.

Because of the inert nature of nitrogen, it is often the material of choice in food and beverage packaging. If food products are packed along with air, the oxygen in the air can cause oxidation and spoilage of the food. Nitrogen is used as a headspace gas to prevent such spoilage.



## Benefits

- Replacing air (which contains oxygen) in a package with nitrogen reduces the risk of microbial growth.
- Nitrogen can also be used to improve the appearance and texture of food and beverage products. For example, it can make chips more visually appealing by creating a 'puff' effect.
- Nitrogen prevents a product from becoming soggy or stale and thus maintains the crispness and texture of the product.

The benefits of using nitrogen in food and beverage packaging include an extended shelf life, increased product safety and maintenance of product quality.



## Definition

### **MAP-Modified Atmosphere Packaging**

Any packaging method in which an altered atmosphere is created in the headspace that retards chemical deterioration while simultaneously retarding growth of spoilage organisms

—Principles and Applications of Modified Atmosphere Packaging of Foods, edited by B.A. Blakistone, Aspen Publishers, Gaithersburg, Maryland, U.S.A., 1999.

## Standards related to nitrogen in packaging

In general, the regulations relating to the use of food grade nitrogen apply when the gas is used in MAP. The purity of the nitrogen may, typically, need to be 99 percent or above.

EU and US regulations stipulate that manufacturers producing products with protective atmospheres (including those using nitrogen in MAP) must set up critical control points for the gas content and the integrity of the seal of the packaging. This is in keeping with the Hazard Analysis and Critical Control Points (HACCP), a method that is internationally recognised for managing food-related risks. FDA Food Code 2005—Annex 6 describes the HACCP requirements in the USA. The use of reduced-oxygen packaging is described in Section 2 of the Food Processing Criteria.



In the EU, food-grade nitrogen is classified as a food additive when it is used for MAP. Thus nitrogen is given an additive number, just as colouring agents, stabilisers and acidity regulators are. The additive number of nitrogen is E 941, and according to EU Directive No. 95/2/EC, this number should appear on the packaging label.

In many nations around the world, the European standard is followed, or the requirements are similar.



## Nitrogen in packaging of foods in India

MAP is as suitable for packaging Indian foods as it is for international foods. Many manufacturers use nitrogen in the packaging of a variety of food items: Indian sweets, Indian savouries, spice extracts, essential oils, cakes, brownies, muffins, breakfast bars, toffee, biscuits and confectionery, to name some.



## Trident products used in the food and beverage industry

The following Trident products can be used to generate nitrogen for use in food and beverage packaging:

-[NitroGen](#)

-[Cleansweep](#)



Contact Trident for your nitrogen requirements for food and beverage packaging

### **Trident Pneumatics Pvt Ltd.**

5/232, KNG Pudur Road,  
Somayampalayam P.O.  
Coimbatore - 641 108. India.  
Ph : +91 - 422 - 2400492 Extn: 223  
Fax : +91 - 422- 2401376  
e-mail : [sales@tridentpneumatics.com](mailto:sales@tridentpneumatics.com)

Trident Pneumatics manufactures a wide variety of equipment to treat compressed air for every possible use, for pressures up to 16 bar and flow rates up to 2000 cfm.