

Making our world more productive



MAPAX[®] Glossary



Active packaging

Active packaging employs a packaging material that interacts with the internal gas environment to extend the shelf-life of food. Such technologies continuously modify the gas environment (and may interact with the surface of the food) by removing gases from or adding gases to the headspace inside a package. Examples of active packaging systems are oxygen scavenging, carbon dioxide production, water vapour removal, ethylene removal and ethanol release.

Aerobic organism

An organism that normally grows in the presence of air (20% oxygen).

Anaerobic organism

An organism that normally grows in the absence of air (20% oxygen) or oxygen. Anaerobes can be "strict" (obligate) anaerobes, i.e. they can be killed by oxygen, or "facultative" anaerobes, i.e. they can grow under either aerobic or anaerobic conditions.

Anti-fogging properties

Film manufacturers produce a high surface tension film with hydrophilic properties that allows moisture to wet the surface in order to avoid fogging.

Argon

Ar is an inert gas with low solubility in water. Air contains approximately 1% argon.

Bacteriostatic effect

Capable of inhibiting bacterial growth without killing microorganisms.

Biochemical process

Process or phenomenon in a living organism or biological system described in chemical terms.

BIOGON®

BIOGON® is the trademark for food-grade gases from Linde available in certain countries.

CA

Controlled atmosphere.

Campylobacter

A genus of microaerophilic bacteria, some forms of which can cause serious health issues.

Carbon dioxide

CO₂ has a slightly acidic odour. It dissolves easily in water and thereby inhibits the growth of many microorganisms. Air contains approximately 0.03% carbon dioxide.

Catalyst

A substance that regulates the rate of a chemical reaction and itself remains unchanged.

Clostridium

A genus of bacteria classified as gram-positive rods, anaerobic endospore formers with a fermentative mode of metabolism.

Controlled atmosphere

The atmosphere surrounding food is changed and then controlled during storage.

CFU

Colony-forming units are used to measure the number of microorganisms.

EMA

Equilibrium Modified Atmosphere.

Enzymatic reaction

Chemical reactions catalysed by enzymes.

Enzyme

Globular protein that is the catalyst of a biological system.

ERH

Equilibrium Relative Humidity.

Fermentation

Anaerobic energy-yielding metabolism of cells.

Gas flushing

Flushing with gas or gas mixture to establish a modified atmosphere.

HACCP

Hazard Analysis and Critical Control Point. A systematic approach to the identification, evaluation and control of food safety hazards.

Inert gas

A gas that does not react with other substances under normal temperatures and pressures.

Lactic acid bacteria

Gram-positive bacteria, usually non-motile, non-sporulating bacteria that produce lactic acid as a major or sole product of fermentative metabolisms. All rod-shaped lactic acid bacteria are placed in one genus called Lactobacillus.

Leak detection

Quality assurance method to check whether food packages have leaks.

Listeria

Facultatively anaerobic bacteria causing serious human disease.

MAP

Modified Atmosphere Packaging. This means altering the composition of the atmosphere inside a package so that it differs from that of normal air.

MAPAX®

MAPAX® is a tailor-made MAP solution developed and delivered by Linde based on data about food, gases and packaging.

MAPAX LD

In-line leak detection system from Linde.

Master-pack

Consumer packages (over-wraps) are packed in a big flexible pack that is gas-flushed.

Membrane

A membrane consists of numerous layers of very thin polymer film, bundled into fibres. It is used to produce nitrogen on site by exploiting the variations in velocity at which different gas molecules pass through polymer materials.

Mesophilic bacteria

Organisms living in the temperature range around that of warm-blooded animals. This means those that grow well between 20°C and 45°C.

Microorganism

All microscopic forms of life, which includes such forms as bacteria, fungi, viruses, protozoa and algae.

Modified atmosphere

An atmosphere differing from that of normal air. Normally the oxygen content is reduced and the carbon dioxide content is increased.

Mould

Aerobic food-spoilage microorganisms. They tolerate low water activity and a low pH value.

Myoglobin

The principal pigment in fresh meat. The form it takes is of prime importance in determining the colour of the meat.

Nitrogen

N₂ is an inert gas with low solubility in water. Air contains approximately 78% nitrogen.

Nitrous oxide

N₂O dissolves easily in liquid. It is mainly used for whipping cream.

Nutritional content

Expresses the nutritional content, e.g. carbohydrates, fats, proteins and vitamins.

Oxidation

Chemical reaction with oxygen resulting in unwanted changes, e.g. rancidity and vitamin loss.

Oxygen

O₂ is a very reactive gas with low solubility in water. Air contains approximately 21% oxygen.

pH value

Expresses acidity (pH 0–6), neutrality (pH 7) and alkalinity (pH 8–14).

PSA

Pressure swing adsorption. This technology is used to produce nitrogen on site. It is based on the ability of activated carbon to capture and retain oxygen from the air under certain conditions, while allowing nitrogen to pass through.

Protein

Macromolecules built up of amino acids with peptide bonds.

Pseudomonas

A genus of an aerobic gram-negative rod-shaped bacteria, ecologically important in soil and water owing to their large capacity to mineralise organic matter.

Psychrophilic bacteria

These bacteria are able to grow at low temperatures, i.e. 0°C to 5°C.

Rancidity

Oxidation of lipids.

Respiration

Aerobic energy-yielding metabolism of cells.

Shelf-life

The period between packaging a product and its use, during which the quality of the product remains acceptable to the consumer.

Shelf-life technology

The methods for enhancing shelf-life.

Sous-vide

The sous-vide technique entails packaging a food product in a vacuum, then preparing it at high temperature (70 to 80°C), and quickly chilling it down to 2 to 4°C.

Thermophilic bacteria

Organisms that grow at elevated temperatures, i.e. above 55°C.

Water activity

a_w . The ratio of the water vapour pressure of a material to the vapour pressure of pure water at the same temperature.

Food



Gas



Packaging



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