

New protective packaging for conservation of Cashew



Conservation issues

Due to the oxidation of (lipid) fats and oils, cashews are sensitive for rancidity and limits shelf-life in traditional bulk size packaging. With the introduction of fully hermetic, protective packaging with aluminum barrier film and the possibility to create & maintain modified gas conditions inside bulk-size packaging, long-term storage of cashew is now possible. Lipid oxidation is effectively prevented by anoxic conditions and by excluding light.

Cashew nuts absorb moisture from the environment and become softened which reduces its organoleptic properties such as taste texture flavor and odour. The significance of this study is to use packaging materials to improve the shelf life of cashew nut and to have its during off season. Packaging is the science, art and technology of enclosing, sale and use. It is also a means of achieving safe delivery of products in a sound condition to the final user.

From study "Effect of packaging materials on moisture and microbiological quality of roasted cashew nut" by Abiodun S. Oladapo

For small size packaging of cashew, the advantages of vacuum are well known and commonly applied. With vQm, the same benefits can achieve for bulk-size packaging. Another common issue is aflatoxin development on cashew. Water activity (a_w), storage temperature, headspace oxygen and carbon dioxide concentrations influence the growth of, and aflatoxin production by *Aspergillus flavus* on sterile cashews. Anoxic or vacuum conditions inside packaging can inhibit aflatoxin production.

	<i>Vacuum only</i>	<i>N₂ flushed and vacuum</i>	<i>N₂ no vacuum</i>	<i>CO₂ flushed and vacuum</i>	<i>CO₂ flushed no vacuum</i>
Quality preservation	V	V	V	ok	Not rec
Stable humidity	V	V	V	ok	Not rec
Insect treatment	X	V	V	ok	Not rec
No re-infestation	V	V	V	ok	Not rec

V proven beneficial X Not beneficial

Ok No big advantaged Not rec Not recommended

Optimum conservation conditions

The combination of the vQm valve, sealed inside a vacuum-proof, high-barrier liner, along with the vQm vacuum unit allows you to:

- **Vacuum pack** your peanuts on pallet size: in a FIBC with vacuum-liner or smaller bags inside a wrapping liner
- Create **modified atmosphere (MAP), anoxic conditions**: by connecting an external nitrogen (or CO₂) supply, the vQm unit can be easily programmed for multiple cycles of vacuum followed by injection of nitrogen. By doing so, an increased nitrogen concentration can be achieved with every cycle, reducing the residual oxygen concentration inside the packaging. By doing so an anoxic environment can be created that effectively minimizes the oxidation/rancidity. When the vQm protocol "MAP vacuum" is selected, the packaging remains under vacuum, while the protocol "MAP no vacuum" will leave the packaging at (ambient) pressure once the last cycle of gas injection has been completed.



For what food applications the vQm used in general?

- The high barrier properties of the film that is used for the liner, in combination with the hermetic closure, allows you to **maintain the moisture content** of your product during the complete supply chain, from the moment of packaging. Minimize external influences on your product due to high humidity, condensation or direct water contact. If packed under vacuum, no condensation will occur on the inside of the packaging.
- By creating MAP conditions of extreme low oxygen or high CO2 concentration or by maintaining vacuum over an extended period, **all insects in all life stages can be eradicated**. Most quick and easy is high CO2, if the product can endure these conditions. Otherwise low-oxygen in combination with vacuum is the most applied alternative. Since the packaging is hermetic, **no re-infestation** can occur if it remains intact.
- Often, the quality of products is negatively affected by oxidation. By reducing the number of oxygen molecules in the packaging, this **oxidation can be minimized**. Oxidation of (lipid) fats and oils in e.g. nuts, powders, seed or brown rice is known as **rancidity**. Oxidation is also causing **decolorization** of products, e.g. dried chilies, spices or herbs.
- **Preservation of taste and aroma's**. Aroma (or smell or odor) is the sensation perceived when volatile compounds are sniffed through the nose and directly impact on the perceived taste. These volatile compounds can best be preserved in hermetic, anoxic or vacuum conditions. Products that can benefit from are e.g. dried spices, dried herbs and tea.
- Other additional benefits could be e.g. **reduction of breakage** (nuts), as the product is fixated under vacuum, **volume reduction** (fluffy powders, tea, chilies etc), **reduced temperature fluctuations** during the supply chain (under vacuum: temperature transfer is inhibited; particularly useful for e.g. green coffee when shipped in containers with big temp fluctuations inside the container (day/sun vs night).

☰ menu

Offer request




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