

Why use evacuated / gassed cans for food?

A lot of manufacturers of high-quality products are gassing their cans. In gassed cans, pharmaceutical products or high-quality food products have a longer shelf-life and a significant improvement in quality.

By eliminating oxygen, the product can no longer oxidise or “perish”. The oxidable parts of the products, above all fats, proteins etc., retain their natural freshness when kept away from oxygen. The lower the oxygen levels in the product, the longer the can’s shelf-life. When gassing the cans, the oxygen is normally replaced by nitrogen. However, it is also possible to use a mixture of carbonic acids which have a certain conservation effect.

More and more countries make new regulations for the minimum of shelf-life and quality requirements for canned food products. The rules for a shelf-life guaranty in the EU countries are 2 years.

Which products are preferred for evacuation and gassing?

For decades now, gassing has been the standard method used for expensive, concentrated pharmaceutical products, such as vitamins. The gassing of cans is recommended for all types of food.

Here are a few canned products where gassing is the current quality standard:

- vitamins, pharmaceutical raw materials, medical or veterinary products
- soluble children’s food in powdered or granulated form, milk powder, diet products
- all forms of coffee, coffee substitute, instant products
- potato crisps, snack, pastries
- nuts, muesli, cereals
- meat products, cheese products

Evacuating, gassing – or both?

In principle, evacuation, i.e. the removal of the surrounding air, is sufficient to improve the shelf-life of products. This is the case for many fresh foods currently shrink-wrapped in film. But there is a problem when evacuating cans without gassing them: the cans can be completely destroyed. The can would collapse due to the internal vacuum and external pressure of the atmosphere. For this reason, the oxygen-laden air which is removed from the can must be replaced by an inert gas (nitrogen).

INDOSA PRODUCT-INFO**Vacuum Cans II****Which system?**

The criteria for deciding which system and plant to use depend on various parameters and requirements:

- available budget
- total capacity of the plant in cans/hr and kg/hr
- layout and position in the factory
- can formats and can sizes
- products and product behaviour
- weights and charges of fillings
- filling weight of the products
- required residual oxygen content
- degree of automation and accuracy
- safety requirements and logging
- additional machines for additional operations

Methods and systems for evacuating and gassing cans**1. Gassing tunnel** (easy way, but not enough efficient)

Gassing filled cans in a gassing tunnel (without evacuation) by flooding gas over the cans before sealing them. Residual Oxygen Content in Can $O_2 = 6-8 \%$

2. Vacuum and gassing chambers (old fashion, very complex, insecure method)

After pre-clinching the vacuum lids onto the cans, a large number of cans are evacuated and gassed in a sealed vacuum chamber; then the gassed cans are seamed tight in the atmosphere. Residual Oxygen Content in Can $O_2 = 2-3 \%$

3. Sealing stations with vacuum chambers (high vacuum only in strong tin cans)

Evacuation of filled cans in sealing stations with chambers with evacuating process in seaming chamber up to 50 % Vacuum. Residual Oxygen Content in Can $O_2 = < 11 \%$

4. Machines with rotary seaming heads (restricted possibilities, inefficient by mechanical angle control, complex for format change)

Evacuation and gassing of filled cans in mechanical rotary seaming stations with mechanically controlled processes by angle sectors. Residual Oxygen Content in Can $O_2 = < 2 \%$

5. Evacuation using the flow process (INDOSA proGas)

and the gassing of filled cans in many sequential chambers with measurement and control of the processes. $O_2 = 1-2 \%$

6. Process-machines with stationary multi head process stations (INDOSA proVac)

Evacuation, gassing and seaming of filled cans in stationary process stations with controlled processes in independent chambers. Defined under pressure in finished can. Automated chamber cleaning after each stroke. Unique 100% safe memorised process. SCS-System (Single Can Process Security) Residual Oxygen Content in Can $O_2 = < 0.5 \%$

Systems for the various methods are supplied by INDOSA.

All sizes and types of can (tin and composite cans) can be processed by INDOSA machines.

INDOSA Systems for vacuum cans are available in all ranges of capacity and degree of automation.