
PACKAGING OF COFFEE

**Guidelines for the product-friendly,
flexible packaging of coffee in sustainable
packaging materials.**

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Glossary

Arabica beans = the most important coffee variety in the world market, 61 percent of the world harvest is made up of Arabica beans; a very fine and fruity coffee note (the remaining 39 percent of the world harvest is made up of Robusta beans; they are stronger, more distinctive in taste)

Stripping = Harvesting method, where all coffee cherries are stripped from the branch at once, either by machine or by hand

Picking = only the ripe coffee cherries are harvested individually by hand

Cupping/Tasting = coffee evaluation of the imported green coffee

Destonation = filtering out stones and foreign bodies from the roasted beans, before the coffee is ground

Give away = slight over dosage above the actual printed package weight

Various plastics:

PET = polyethylene terephthalate

PP = polypropylene

PE = polyethylene

Alternative high barrier films:

EVOH = ethylene vinyl alcohol

SiOx = known as Ceramis

Peel-opening (to peel, loosen) = sealed seams, which are easy to open by hand, without any other aids

1. Coffee, a sensitive premium product



After crude oil, coffee is the second most important raw trade commodity worldwide. Even though coffee production after the record 2018/2019 season is somewhat lower in the forecast for 2019/2020, falling from 174.6 million 60kg bags to 169.3 million bags¹. The decline is due not least to the lower yields of Brazilian Arabica* trees, which are in a low yield year of their two-year cycle. It is noticeable that sustainable coffee cultivation is becoming increasingly important, and, is to a great extent, **due to consumers around the world attaching increasing importance to certified ecological and labor law conditions.**



Consumption of the aromatic bean continues to rise, albeit at a somewhat slower pace than in previous years: the United States Department of Agriculture forecasts global consumption of 166.4 million sacks for 2019/2020. In Germany, coffee is the most popular beverage; 92 percent of Germans drink coffee on a regular basis². On average, 162 liters of coffee are consumed annually per capita. Germans are not the most avid coffee drinkers. These are found in Scandinavia; Finland is in first place, followed by Sweden and Norway.



* See also glossary page 3

¹ See also Foreign Agricultural Service/USDA, Office of Global Analysis, from December 2019

² See also Coffee encyclopedia of Selecta Germany GmbH

1. Coffee, a sensitive premium product



» However, before the coffee reaches the cup, steaming and fragrant, the beans pass through numerous small process steps, both in the countries of cultivation and in the importing countries. Coffee is a very sensitive product that must be processed gently during cultivation, harvesting and further treatment.

The packaging of coffee also plays a major role in ensuring that consumers ultimately find an appealing, flawless and tasty product in the cup. ROVEMA GmbH based in Fernwald, Hessen, are experts in coffee packaging solutions and in this guide points out the **product characteristics as well as the necessary handling systems during the packaging process.**

1. Coffee, a sensitive premium product

1.1 From the bean to the aroma bag

Before coffee is packaged, there are many different steps involved, first of all **in the growing countries:**

- **Harvest:** often still by hand, by stripping* or picking*
- **Drying method,** in which coffee cherries are dried on huge fields
- Alternatively, the **wet method:** pulp is removed and the beans are fermented in large water tanks
- **Removal of the skin layers** until the pure bean is left
- **Export of green coffee** in 60kg jute bags

Process steps **in the import countries:**

- **Bean tasting** (Cupping/Tasting*) to determine quality and taste
- **Possible decaffeination process** of the green beans
- **Roasting:** the coffee gets its typical brown color
- **Destonation:** Filtering out stones and foreign bodies
- **Grinding** to coffee powder
- **Packaging process** in high-quality bags that guarantee aroma, freshness and shelf life.

The value of the product "coffee" can be assessed based on these numerous, sometimes complex treatment steps.

1.2 Packaging matters

First and foremost, packaging is all about product protection: The coffee is filled into **100 percent gas-tight bags** to achieve a certain shelf life (the usual shelf life in Germany is up to two years; this especially applies to coffee made from whole beans). It is important that no atmospheric exchange can take place. For this purpose, the coffee is filled with a protective gassing (a mixture of nitrogen and carbon dioxide). If too much oxygen were to reach the coffee, the oils/fats contained in the coffee could become rancid. Once this oxidation process has started, it cannot be stopped or reversed. **In addition, the bags must have good barrier properties, to avoid the product greasing through.**

>> Coffee is an emotional premium product. At the point of sale (POS), the high-quality visual presentation is therefore very important: It's all about the bag quality, the impression, the feel, the stability as well as the size of the presentation area on the bag in order to present the print in an impeccable style.

* See also glossary page 3

1. Coffee, a sensitive premium product

1.3 Challenges for the coffee industry

During the packaging process, coffee manufacturers must not only take the special properties of the product “coffee” into account. They also need a system that is as economical as possible which doesn't neglect their individual requirements in terms of quality, output and flexibility. **This is where the needs of large coffee producers and smaller, local roasting plants differ.** While the large manufacturers generally rely on dedicated dosing systems for each machine when configuring their systems (scales for whole beans, auger feeders for ground coffee), smaller manufacturers tend to prefer flexible systems that can process both types of coffee on one machine, not least for cost reasons. **ROVEMA sees an increasing demand for innovative combinable dosing systems that can process both, coffee beans and ground coffee, and thus facilitate the entry into automated packaging processes.**

>> A trend that is occupying both larger and smaller roasters is the increased interest of consumers in recyclable packaging materials for sustainability and lifestyle reasons. Since the basic requirements for packaging materials for coffee are already very high – from barrier function to attractive appearance – coffee manufacturers face particular challenges in integrating these new materials into the packaging process.



2. Coffee types and their packaging

2.1 Coffee variants

In this section the different coffee variants are described in more detail, especially those which ROVEMA shelf ready packs on their Vertical Form Fill and Seal (VFFS) machines.

One coffee variant is **whole bean coffee**, which is ground immediately before use. The roasting time determines the bulk density of the product and the fragility of the beans. The darker the roast, the more fragile the bean and the higher the bulk density of the product.



Ground coffee is prepared in filter coffee machines. Filter coffee is more susceptible to oxidation processes, as more cells are exposed to oxygen. It is therefore advisable to consume an opened package within one or two weeks.

Agglomerated and freeze-dried coffee, known as instant coffee or soluble coffee, stays fresh much longer than ground coffee. The powder or granules are infused with an appropriate amount of hot water and dissolve quickly. The requirements for its packaging are similar to those for ground coffee, as it is a very fine granulate, sometimes a powder.



2. Coffee types and their packaging

Filter bags are small ground coffee portions, packed in a filter fleece material, which can be prepared on a filter coffee machine. Hotel chains and offices also use single portion packs for their coffee machines. The single or multi-portion filter bags are packed into a larger, airtight, aroma-proof bag on the packaging machine. Filter bags are very common in the North American market and are frequently used by airlines, offices and in the catering industry.



Coffee pads are cup portions in the form of so-called pads or pods, which can be prepared in corresponding coffee machines. For this packaging process ROVEMA has a dosing system, through which the pods are fed and finally inserted upright in two stacks into a stand-up pouch, slightly layered into each other³.



Other portion forms include **coffee capsules** and **vacuum-packed coffee bags** for ground or coffee beans. Both variants are not subject of this packaging guide, since they are not processed on ROVEMA systems.

³ ROVEMA provides only the packaging solution for coffee pads, not the machines for the production of the pads.

2. Coffee types and their packaging

2.2 Packaging systems

The above-mentioned types of coffee are packed into various types of bags by means of Form Fill and Seal machines for **the retail trade, and also for restaurants and coffee shops**. The packaging machines are configured and assembled by ROVEMA for the individual application purpose with all desired elements. The packaging includes not only the primary packaging process – the filling of the actual product via the

Form Fill and Seal machines, but also the final packaging. **ROVEMA delivers complete packaging lines including the final packaging or outer packaging as a turnkey solution.**

These can serve as pure transport packaging, from which the coffee bags are removed and sorted on the shelf, but also as part of the sales (POS) packaging suitable for the store, i.e. a tray is placed on the shelf with several coffee bags inside. The latter is a rationalization of the shelf loading and the sales process and also serves towards the brand presentation, as the company logo can still be attached to the edge at the front.



2. Coffee types and their packaging

2.3 Bag variants and package sizes

Which bags and package sizes are chosen

usually depends on whether they are intended for retail, coffee stores, coffee shops or catering.

In the retail trade the package sizes are between 200 g and 1,134 g (approx. 40 oz). Commonly used are flat, block bottom and Stabilo Seal bags, both for whole beans and for ground or agglomerated coffee.

Other features:

- often with tin-tie re-closure
- often as block pack
- often with peel-opening

In coffee stores the sizes vary from 1.000 up to 5,000 g. Features here are:

- mainly for coffee beans
- for refilling coffee machines in Coffee Shops
- typically unprinted packaging materials
- also available as block bottom bag
- long durability required

For companies, businesses or airlines

there is an additional variant, the portion pack. This is used exclusively for packaging of ground coffee or filter bags. The package sizes range from portion packs of 28 g (1 oz) up to 100 g (3.5 oz). Especially for larger roasters, which supply the gastronomy, this is an important pillar.



2. Coffee types and their packaging

ROVEMA SBS 250 Single:
High Flexibility in bag
top designs



These are the different bag and closure variants:

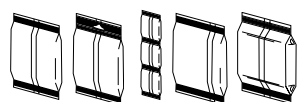
- **Flat bottom bags** (stand-up pouches, block bottom bags): a bag that stands firmly on the shelf with good presentation
- **Stabilo Seal:** a bag shape developed by ROVEMA with high-quality optics, clearly separated presentation areas; higher stiffness of the bag through four sealed longitudinal edges
- **Block pack:** more compact, more stable bag with flat bag top, therefore very low transport volume and best possible pallet utilization

- **Flat bag for Portion Packs:** laying flat/pillow bags as portion packs; most efficient bag shape in filling and packaging
- **Peel-opening:** special packaging material that allows the end user to open a bag without tools (knife, scissors); the bag does not tear uncontrolledly, but only at the upper part of the sealed seam; the bag remains stable and can be reclosed
- **Tin-Tie re-closure:** paper or plastic strips with metal wire that can be opened and reclosed after product removal

All these bag shapes can be produced on a single machine type, the ROVEMA SBS bag machine with a variety of bag top shapes

Bag styles and bag top shapes:

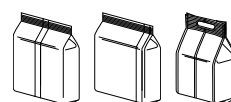
Flat/pillow bag



Side seal pouches



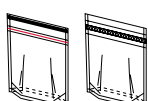
Stand-up bags / block bottom bags



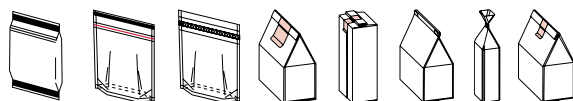
Stabilo Seal



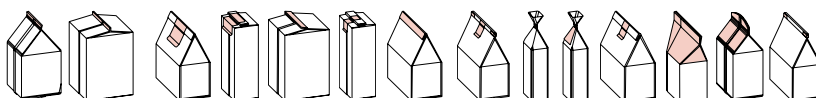
RoPack bags



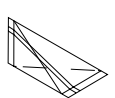
Re-closable bags



Bag top shapes



Others



3. The packaging process

The packaging line first comes into play, after all described pretreatment steps have taken place and the consumable coffee is ready for store quality packaging. All upstream machines like silos or conveyor systems are not yet part of the packaging process.

Once the coffee is delivered, **there are additional further upstream steps like product detection.** Control systems are used to prevent smallest metal particles or pieces of wood and stone destroying the coffee machines' sensitive high-performance grinders.

3.1 Precise dosing systems

The actual packaging process begins with the dosage. The dosing accuracy is the most important thing. Since coffee is a relatively expensive product, it is in the interest of the manufacturer to pack as accurately as possible at a high packaging output, i.e. not to give away too much of the product (so-called give away*). According to the European Packaging Regulation, the average of a production shift must contain at least the weight printed on the package. Thus, packaging is allowed that contains slightly less than the printed value and also packages that contain more – not too much more, because otherwise there would be a distortion of competition. In other regions, e.g. the USA and Canada, the weight printed

in the package is the minimum weight and can be exceeded. **Therefore, very precise dosing systems are essential.**

>> ROVEMA not only integrates its own dosing systems, we also integrate systems of the customer or of third parties into the packaging machine. To allow start of production at the customers' without complications, everything is combined in advance and extensively tested at ROVEMA.



* See also glossary page 3

3. The packaging process

3.1.1 Gravimetric dosing systems

Gravimetric systems are working according to the **weight of the product**, i.e. a weighing. Gravimetric dosing is ideal for robust, piece size, free-flowing products, as this allows for precise dosing. Nevertheless, this is offset by a **significantly higher investment sum (factor 2.5 to 3)**.

This investment often pays off, because the target weight is achieved very precisely and the cost-intensive give away can be kept low. Weighing systems are more suitable for whole beans, which are easy to process and fall well into the bag. On the other hand, powdery products are more likely to disperse on their fall path into the bag and float downwards. This reduces the process speed when weighing ground coffee and the output rate is hardly economical.

3.1.1.1 Multihead weighers

The multihead weigher (also partial quantity weigher or combination scale) **puts together the target weight from several partial weights**. For example, twelve subsets are available, of which four are chosen whose sum comes closest to the target weight. The advantage is this scale's high performance – but this is also the most cost-intensive version.



3.1.1.2 Net scales

A more cost-effective weighing alternative, for smaller manufacturers and roasting companies, is the net weigher (also channel or belt weigher). **It weighs and doses the product in small steps until the target weight is reached.** This is time consuming and minimizes the output rate (factor ¼ compared to a multihead weigher). However, high output rates are usually not as important to smaller roasting companies.



3. The packaging process

3.1.2 Volumetric dosing systems – ROVEMA's own developments

Volumetric dosing systems are working according to the **product volume**. This requires a uniform, homogeneous bulk density, which is given with ground coffee.

3.1.2.1 Auger dosing systems

For the volumetric dosing ROVEMA relies on a self-developed auger dosing system; primarily for ground coffee, but also for coffee beans or agglomerated coffee. An auger screw transports the product compactly in an auger tube. The volume is geometrically defined by the auger and the target volume is determined by the number of rotations. The big advantage is that dusty or fatty products are conveyed directly into the bag, without any residues settling on hopper walls or getting into the environment.



SDH auger doser: closed system, made for dosing under protective gassing

>> ROVEMA auger screws are produced according to the whirling methodology, ensuring better product transport: Whole beans or agglomerated coffee are processed more gently through the auger doser. The ROVEMA auger dosing system is particularly suitable for combination machines, able to process both ground coffee and coffee beans. The beans are barely damaged. A particularly short auger reduces the product friction.

In some cases higher quality coffee beans with an absolute minimum of bean chipping is required. These roasters will subsequently tend to rely on weighing systems for such applications.

3.1.2.2 Cup dosing

Cup dosing is another cost-effective form of volumetric dosing, but less accurate than a gravimetric version. It is primarily used for the packaging of lumpy or granulated products at high output rates, e.g. pulses, rice or couscous. But even for smaller coffee producers, **cup dosing can be used as an entry into automated packaging processes for cost reasons.**



VDD cup dosing: Proven dosing technology; can also be used as flap discharge dosing for sensitive products

3. The packaging process

3.2 Degassing and gas flushing of coffee

The freshness and taste of the coffee is significantly influenced by the post-roasting process, i.e. degassing and oxidation. The roasting process generates gases (usually carbon dioxide) inside the coffee bean, which then start to seep out. If the CO₂ escapes very quickly and unevenly, it can have a negative effect on the taste.

The oxidation process that starts after the beginning of degassing also negatively affects the taste: oxygen penetrates the coffee and makes it stale. **For these reasons, coffee is packed quickly after the roasting process and the oxygen content in the packaging is reduced as well as replaced by alternative protective gases (gassing process).**

3.2.1 The fragrance on the coffee shelf

With whole beans the degassing process is slightly slower (up to several weeks) than with ground coffee (two to four days). In the second case, the grinding process breaks up considerably more cells, so that more gases can escape. Coffee beans are usually packed immediately after roasting, while ground coffee is usually

stored in a container or silo for two to four days before packing to avoid excessive degassing in the packaging.

>> Degassing valves are used, for both whole bean and ground coffee, to avoid inflation of the bags by ensuring gases can escape from the package in a controlled manner. They allow the degassing process to take place while preventing oxygen from entering the bag. Since the packaging tightly seals its content, it is the valves that provide the aromatic fragrance on the coffee shelf; an emotional support to the sales process.

With agglomerated or freeze-dried coffee, degassing does not take place, so no degassing valve is required during the packing process.



3. The packaging process

3.2.2 Aroma-Perm Gassing System

To ensure long-term shelf life and freshness, the oxygen content in the filled bag must be reduced. This is done by introducing a heavier protective gas into the packaging. The gases commonly used are CO₂, N₂ or a mixture of both. The gassing is usually carried out in the customer's infeed system, in the dosing system and inside the format tube of the Form, Fill and Seal machine, which leads directly into the bag. The residual oxygen levels are defined for the different machine solutions. Typical required residual O₂ values vary between 0.5% and 3.0% depending on the application.

>> For this purpose, ROVEMA's self-developed Aroma-Perm gassing system is used. It is characterized by the variety of adjustment possibilities, e.g. for the inflow to the gassing channels, by minimizing the gas losses as well as the possibility to integrate additional gassing channels for the pre-gassing of the customer's infeed system.

Apart from the actual gassing process, gassing mechanisms can also be used in the preceding process steps, such as dosing, to achieve low residual oxygen values in the bag at high output rates. This also includes options to enclose the dosing systems (particularly necessary for weighing systems, while auger dosing systems are closed systems allowing very low residual oxygen rates). **For the shelf life of the coffee, the overall process consideration from pre-gassing to the gassing of the product in the bag is decisive.**

Optionally, additional analysis systems can be used to check the residual oxygen quantity, to report overruns and to initiate a gas quantity adjustment.

3.2.3 Option proportional valves

Proportional valves are an option for setting an optimized gas quantity depending on the product to be filled. These are **particularly suitable as upgrade kits** to keep existing machines up to date. They enable a controllable, optimized gas quantity to be set on the machine. Depending on the recipe, the machine control system can store gas quantities for certain coffee types and pack sizes, which can be precisely fed with the proportional valve. This offers the customer great saving potential.

3. The packaging process

3.3 Degassing valves

We distinguish between valves sealed into the bag and valves that are applied from the outside. More common are valves that are applied from the inside, as they are not visible to the customer and do not impair the visual appearance of the coffee bag at the POS.



3.3.1 Button valves – ROVEMA button valve applicator

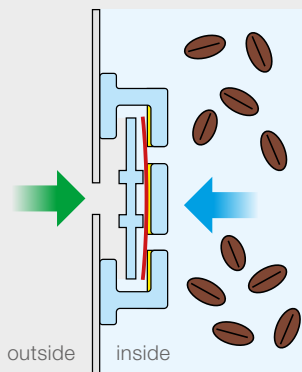
The button valves sealed to the inside are plastic bodies with an embedded membrane. **The valve is already applied to the flat film web in the packaging machine's reel carrier.** The button valve applicator developed by ROVEMA perforates and seals the valve within only one working position, so that hole and valve are always identical; offset positioning is not possible.



An essential functional component of the degassing valves is the membrane, which prevents uncontrolled gas exchange between the atmosphere in the bag and the environment. This membrane is held in a defined position by adhesive forces using silicone oil. If the overpressure in the bag increases, the adhesive forces are exceeded and gas can escape. When the pressure equilibrium is restored, the membrane is pulled against the valve body by the adhesive forces and closes the holes in the valve body. In this way, no oxygen can enter the bag from outside through the valve. **This functional principle allows a high level of product protection.**

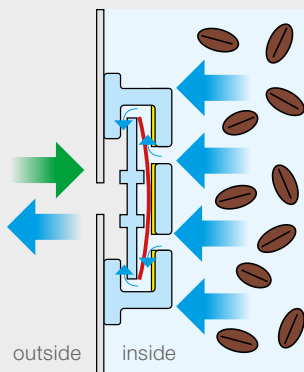
Initial situation

Immediately after the product is packed, the internal and external pressure of the bag is the same.



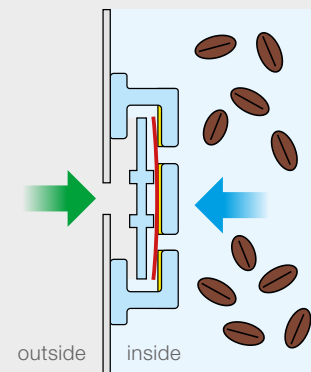
Degassing phase

The gas produced during roasting creates an overpressure in the packaging. The inner flexible valve membrane is opened and the trapped gas can escape.



End of degassing

At the end of the degassing process the pressure balance is restored and the valve membrane returns to its original flat shape. The adhesive force of the silicone oil used prevents air from entering the finished package.



3. The packaging process

3.3.2 Adhesive valves

Adhesive valves are applied from the outside and are easier to apply. At ROVEMA they are already applied to the packaging material in the reel carrier, i.e. a hole for the gas exchange is punched first and then the valve is glued to the flat film web.

Adhesive valves are easy to upgrade and provide the user with a higher output capacity than button valves (by a factor of 1.5). On the other hand, they usually do not offer the same product protection as a solid valve. In addition, since applied externally, they are not tamper-proof and can spoil the high-quality appearance of the bag. However, there are also visually appealing adhesive valves that represent a cost-effective alternative to internal valves.

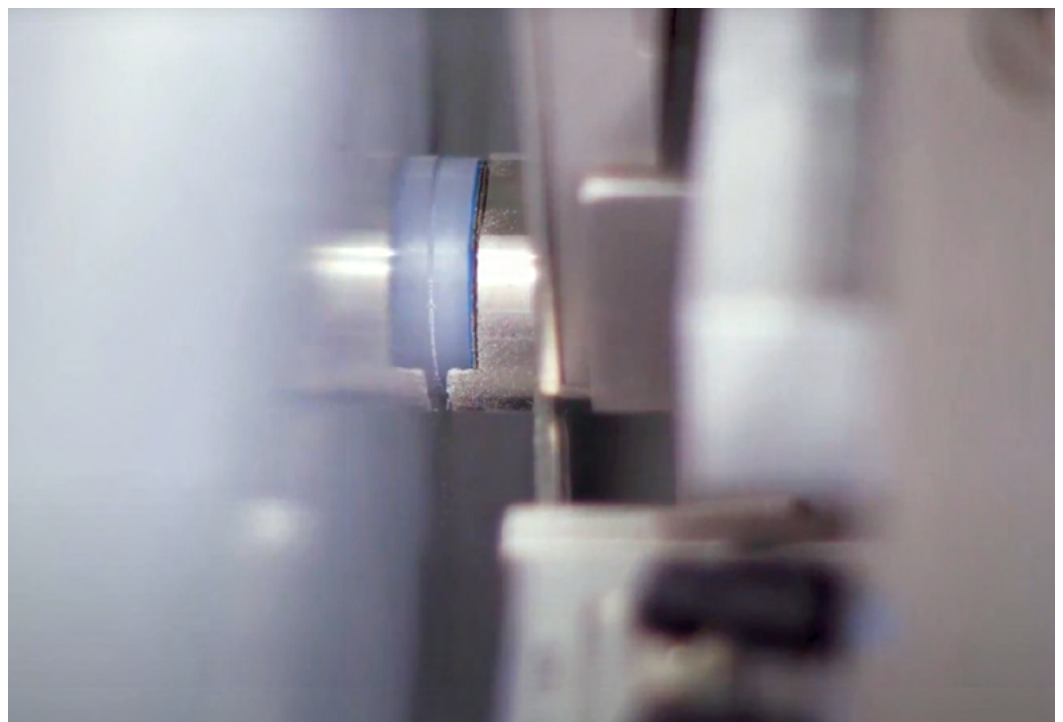
Example for an adhesive valve



Example for an adhesive valve



Outside view of button style valve



Application of button style valve

3. The packaging process

The packaging materials

The packaging materials for the coffee bags must fulfil several functions. **The most important criterion is product protection**, i.e. primarily to protect the coffee from contact with oxygen **in order to preserve its aroma**. At the same time, it is important to **prevent the packaging material from becoming oily due to the high oil content of coffee**. This requires appropriate barrier materials to be incorporated. In addition, a sealing medium must be able to seal the bag airtight. The strength of the sealed seams is important, but also the closing of the finest capillaries in the layer transition area from two out of four layers in the bag's side gusset.

>> In parallel, the packaging materials also have an important sales function, i.e. they must guarantee a high-quality appearance of the coffee packaging. Last but not least, consumers expect the material to have good peeling properties, i.e. the bags must be easy to open and close.

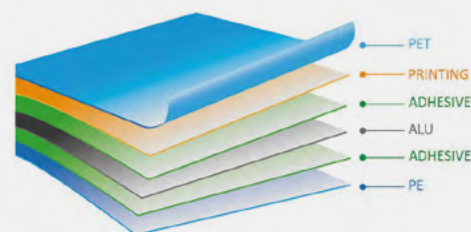
New requirements for packaging materials are resulting from the current sustainability efforts in the packaging industry. This includes the recyclability of the materials.

3.4.1 Advantages of common packaging materials with aluminum composite material

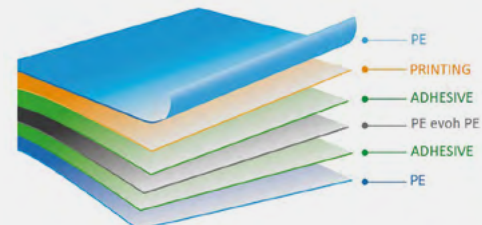
Until now, the majority of all coffee packaging has been made of a **composite material of PET aluminum and PE**. The thin aluminum film (7 to 12 µm) acts as a total barrier. The composite material is characterized by optimum barrier properties and excellent machinability. The PET or PP content gives the material a certain stiffness that enhances the visual appearance of the shelf presentation.

A problem is the aluminum content, as the composite is currently not recyclable on an industrial scale. Many manufacturers are therefore now trying to switch to alternative packaging materials.

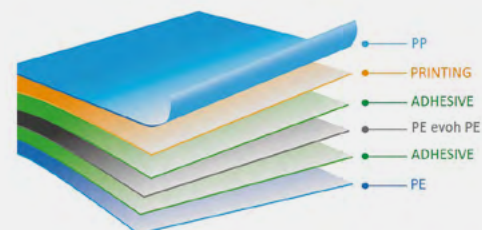
Traditional, non-recyclable film formulation (for coffee packaging)



Monomaterial, recyclable film formulation (for coffee packaging)



Polyolefin, recyclable film formulation (for coffee packaging)



Sources: Hatzopoulos

3. The packaging process

3.4.2 Future trend sustainable packaging materials

Manufacturers of coffee are increasingly turning to sustainable packaging materials, not only because of the rising recycling rates stipulated by law, but also for image reasons. **Consumers are increasingly looking for environmentally friendly and recyclable outer packaging.** This leads to new challenges for the packaging process. The aim is to combine consumer demands with the suitability and availability of sustainable materials from an economic point of view. Even though coffee is a rather high-priced premium product, consumers are unlikely to accept price increases due to packaging.



3.4.2.1 Recyclable packaging materials on PP/PE or PE/PE base*

Packaging composites made of PP/PE or PE/PE with embedded EVOH* or SiOx* barrier layers are currently gaining in popularity due to their recyclability. These composites in some cases consist of up to seven individual layers, but they all come from the same chemical group of polyolefins and therefore are considered recyclable in Europe. In the USA and Asia, these recycling possibilities and requirements do not yet exist.

Packaging materials made of plastic compounds are somewhat more difficult to process than common aluminum composites. It is a relatively soft material that does not have the stiffness of common materials. Currently, packaging material manufacturers are working on making the soft starting material more rigid by using additional composite materials. **ROVEMA GmbH has already successfully tested such packaging materials on their machines.**

They meet to a high degree expectations in terms of performance and speed. In addition, the recyclable packaging material is much thinner than classic packaging materials, which have to be sealed with quite a high energy input. The thinner alternative material has very good sealing properties and in combination with the ROVEMA sealing technology, using particularly high pressure, greatly reduces energy requirements during the sealing process.



* See also glossary page 3

3. The packaging process



3.4.2.2 Packaging materials from renewable raw materials

Some packaging material manufacturers are already working on packaging solutions that consist entirely of renewable raw materials: **Paper from FSC-certified timber, paper made from grass fibers and PE from corn-starch or sugar cane.** Apart from the fact that barriers have to be embedded here as well, the market for bio-based raw materials is very limited. Coffee producers who want to switch to these raw materials will also face a shortage of raw materials in the medium term, which is reflected in the price

and increases packaging costs even further. Moreover, the visual appearance of the packaging materials cannot keep up with the classic ones (yet). Still, these packaging materials serve the image effect "sustainability".

3. The packaging process

3.5 Process safety

With a product as sensitive as coffee, it is essential in the packaging process that all systems interlock and the entire system – from product infeed, dosing and filling to final packaging – ensures high reliability and process safety.

- **Independence from third-party suppliers** of gassing systems or auger feeders due to systems developed in-house
- Choice between ROVEMA's own machine **control P@ckControl** or **Rockwell control** (mainly used in the US market)

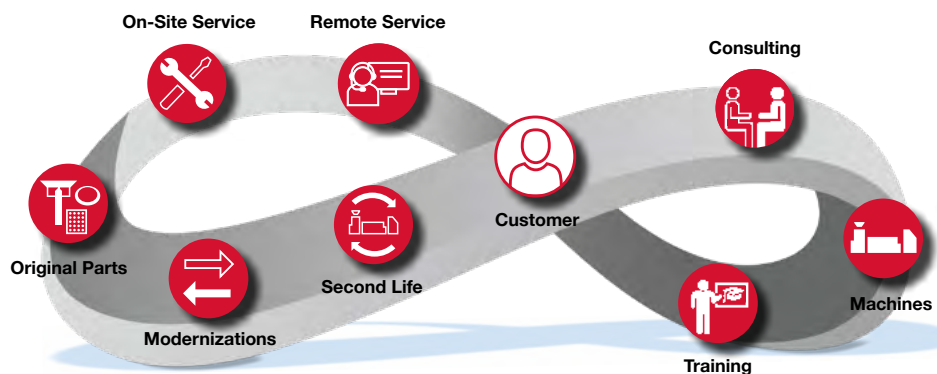
3.5.1 Integrated Systems

With ROVEMA packaging solutions all components are perfectly matched and the entire construction is thoroughly tested and optimized in advance. ROVEMA has numerous in-house developments, but also customer-owned components and systems can be integrated into the Turnkey line on request. The Form Fill and Seal machines are characterized by:

- **High sealed seam quality** due to servo technology, Premium-Seal sealing cycles and high sealing pressure, which also enables reproducible peel openings
- The **flexible processing of innovative, sustainable films – even on existing machines** that can be modified accordingly
- **Visual bag quality** by using ultrasonic film edge control and servo driven gusseting device for best bag quality and repeatability
- **High overall line efficiency** with product detection, "Sense & Seal"^{**} for product-free seams, quick format change for reduced changeover times, easy handling and cleaning

3.5.2 Life Cycle Services

ROVEMA GmbH follows a holistic approach in the provision of their packaging machines. **Customers benefit from the support of the packaging experts over the entire machine life cycle.** This starts with an early consultation, which requirements the machine should fulfill, how flexible it should be, which production capacity must be met etc. The machine is then a customized system that leaves the production line in the quantity of one. **ROVEMA's aim is to keep a machine in the market as long as possible**, and so the company supports the further life of the machine through worldwide maintenance contracts, the provision of upgrades, training of the machine operators on site to make adjustments and to remedy malfunctions independently, as well as through **the possibility of a "Second Life"**. If a packaging machine no longer meets the requirements of the coffee producer, ROVEMA takes the machine back, refurbishes it and delivers it to another customer for a new use.



* See also glossary page 3

4. Conclusion

Making packaging machines fit for the future

>> The request for more flexibility in packaging lines is increasing in the coffee industry. It is important for manufacturers to ask at an early stage what requirements a packaging machine should meet in the long run and how these can be reconciled with the demands for coffee quality and economical implementation.

If a very high bean quality is required for premium roasters, a line with a weighing system is the best choice. However, for smaller roasters who want to take the first steps towards automated packaging, combination solutions offer the necessary flexibility and financial leeway. Engineering competence is needed here, as offered by ROVEMA with early consultation for packaging solutions. As a combination system, a machine that can process ground coffee as well as whole beans with an appropriately adapted auger dosing system is possible. If the demand increases rapidly and manufacturers have to expand their packaging capacities, a second machine is not necessarily needed. A hybrid system would be possible, in which the weighing solution and auger dosing are interchangeable via a sliding assembly platform. In case of floor space problems, however, ROVEMA is able to integrate space-saving, intelligent solutions such as a twin tube Form Fill and Seal machine. If it is clear from the beginning that **sustainability is a central**

part of the coffee manufacturer's corporate philosophy, then the machine can be adapted to process recyclable packaging materials.

ROVEMA as a turnkey system supplier designs machines from dosing to final packaging, focused on future needs, while continually supporting the complete life cycle of the machine.



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Passion for packaging

