

PART 1 - PAPER

New generation barrier paper

At D.A.LAB, we have developed solutions that combine the **functionality of technical materials with the natural, ecological nature of paper**. Our next-generation coatings and impregnations enable the production of packaging papers that are **resistant to water, oil, and oxygen**, eliminating the need for foil lamination.

Thanks to advanced coating chemistry, paper gains properties previously reserved exclusively for multilayer structures containing foil. This paves the way for the design of **packaging that is made of a single material**, easy to recycle, and compliant with current and future environmental requirements, and most importantly, suitable for direct contact with food.

Key advantages of our solutions

Our paper barrier coatings are designed with real-world industrial conditions and packaging market requirements in mind:

Food Contact (FC) – full compliance with food contact requirements

- **100% recyclable** – paper remains paper, without foil layers
- **Elimination of foil** – no fees associated with laminates and difficult recycling
- **High barrier against water and oil** – product protection even in demanding applications
- **Extremely high oxygen barrier** – a real alternative to paper/foil structures
- **Weldability** – the ability to form from packaging on production lines that previously required laminates thanks to the extraordinary sealing strength.

These are solutions that allow packaging manufacturers to **simplify structures**, reduce environmental costs, and respond to the growing expectations of brands and retail chains.





Paper that replaces laminates

Our series of **barrier varnishes for heat-sealable paper** enables the creation of packaging that previously required the use of foil for products that were greasy, moist, oxygen-sensitive, or required a tight seal.

Thanks to its combination of **barrier properties, heat-sealability, and process stability**, paper is becoming a fully-fledged, next-generation packaging material—without compromising functionality.

We invite you to familiarize yourself with the technology

The materials we present demonstrate the **properties, test results, and application possibilities** of our varnishes for barrier and heat-sealable papers. The available video links demonstrate the barrier properties of our varnishes and their heat-seal strength. We demonstrate how paper can effectively replace foil laminates today—technically, economically, and ecologically. We'd be happy to send you material samples.

“Why Does It Work?”

A barrier created inside the paper structure

Our coatings are not a classic "surface varnish." They are designed to **seal the paper's capillaries**, modify the surface energy of the fibers, and create a **continuous, controlled barrier film**. This allows the paper to:

- limit the penetration of water and fat,
- effectively inhibits oxygen migration,
- retains the ability to withstand extraordinary welding strength and further processing.
- **Food Contact (FC)** – full compliance with the requirements for direct contact with food.

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“What does a packaging manufacturer gain?”

Functionality, compatibility and easier recycling

The use of **D.A.LAB** barrier varnishes allows packaging manufacturers:

- **replace foil laminates with single-layer paper,**
- **simplify the packaging structure** thanks to the sealing force,
- **meet the requirements of Food Contact,**
- **avoid the costs and limitations** associated with multi-materials,
- **use existing production lines** (printing, coating, welding).

The result is packaging that combines **high barrier properties, direct contact with food, heat sealability and environmental responsibility** – without technological compromises.

Applications

One technology – many packaging markets

D.A.LAB's barrier and heat-sealable coatings are designed to meet the real-world requirements of various packaging market segments. **Product protection, process stability, and full paper recyclability are key in each case.**

Packaging for fatty and oily products

Paper protected with **D.A.VAC** coatings effectively limits the migration of fats and oils while maintaining the rigidity and aesthetics of the packaging. This solution is used in packaging for bread, confectionery, cheese, convenience products, and ready-made meals, among others.

Effect:

- no fat seepage,
- clean outer surface,
- possibility of welding without foil laminate,
- direct contact with food.



Packaging for dry and loose products

For moisture-sensitive products such as flour, groats, rice, coffee, tea or food mixtures controlling water vapor migration and packaging stability during storage are crucial.

Our coatings:

- Limit paper absorbency,
- Stabilize the packaging structure,
- Enable the production of paper sacks and bags with increased durability.

Modified Atmosphere Packaging (MAP)

In MAP applications, a high oxygen barrier is crucial, extending product shelf life and maintaining sensory quality. **D.A.LAB** coatings enable the design of paper packaging that truly competes with foil laminates in terms of oxygen protection.

Applications include:

- Fresh and vacuum-packed products,
- Meat and sausage products,
- Cheese, and refrigerated products.



Fast food and catering packaging

Foodservice packaging must combine resistance to grease, moisture, and temperature with rapid forming and tight sealing. **D.A.LAB** heat-sealable barrier papers are ideal for wraps, pouches, trays, and service bags.

Benefits:

- resistance to sauces and fats,
- no "soaking" of hot products,
- possibility of eliminating foil in disposable packaging.

Packaging for food and pet food products

The pet food market requires exceptional fat resistance, as well as odor stability and product quality over time. Our solutions enable the production of paper packaging with enhanced barrier properties that meet the requirements of both producers and end users.

Effect:

- protection against moisture and grease,
- better product stability in storage,
- packaging in line with sustainable development trends.

