

# **OPERATIONAL, ENVIRONMENTAL GAINS WITH NEW INTEGRATED DESICCANT CLOSURE**



Cost pressures and sustainability are two of the most pressing topics facing almost every industrial company at present. Rising energy prices, supply chain crunches and a doubling down on circular economy and net zero commitments are all contributing to an operating environment that demands innovation, agility and a willingness to experiment.

In the healthcare and nutraceuticals packaging space, the sector we operate in, customers such as pharmaceutical and health supplement manufacturers are constantly on the lookout for ways in which to make their processes and products more efficient, both in terms of reducing costs and boosting ESG credentials. As a global leader in controlled atmosphere packaging solutions, our job is to enable these kinds of gains to be made.

Take our latest innovation, fresh off the Airnov production line. IDC® (Integrated Desiccant Closure) enables manufacturers to reduce the number of components that would typically form a complete desiccant system in a bottle by integrating the desiccant into the closure.

The unique design is backed by two patents and can be leveraged for the protection of all sensitive products which require safeguarding against humidity, including various pharmaceutical medicines which risk being spoiled by exposure to moisture. Indeed, many drug forms and functional groups have a high level of reactivity to moisture which can impact the drug's chemical stability, physical stability and metabolism, making the existence of protective packaging an imperative to the industry in successfully supplying patients with safe products.

Other key features of IDC are for example, the new tamper-evident system is located on top of the closure – through the color contrast between the upper and the inner cap, the first opening is made obvious to the end-user. Meanwhile, the child resistant system is integrated with a push and turn, making it easy to open and reclose for a wide section of the public, including for the elderly. Once reclosed, IDC is airtight, ensuring the in-use shelf-life for sensitive products.

Crucially, we want to make customers' lives easier by unifying packaging standards globally. IDC could help to make this a reality as it has been developed to be compatible with a large range of SP 33/400 bottles, providing flexibility for customers when selecting a compatible bottle supplier.

In the US and European markets, there are different sizes and approaches to standard bottles and the ways in which desiccants are integrated into them. With IDC, Airnov is offering a solution that covers both market standards, reducing the need for global customers to rely on complex bottle packaging in each region.

### Catering to customized needs

While we seek to unify standards across the globe, we also appreciate the importance of customization to our customers.

Color is often an important component. Here, Airnov is enabling the customization of large batches to match with the customer's specific color code setup and area of pathology.

Meanwhile, inside the integrated desiccant chamber, the fill can be made of different sorbents according to customer need – such fill options they can choose from include silica gel, molecular sieve and EQius.

We're also looking at ways to make IDC available in a large range of specifications in terms of size. Currently, it is available in standard in 33/400 with 3g of silica gel, but we realize the importance of adapting to customers' needs for smaller and larger sizes to suit different end use applications.

No matter the combination of colors, sizes, bottle types or fills, customers can add clarity and certainty to the process by utilizing Airnov's predictive modelling and simulation tool, Stablus. This is essential for pharmaceutical companies, whose products' shelf lives are dependent on optimal packaging solutions.

We know that choosing protective packaging can be a costly and time-consuming process, especially if several rounds of testing and tweaking are involved before an optimized solution is found. With Stablus, Airnov works directly with customers to determine desiccant nature & dosage, or barrier properties needed for a specific application.

Our predictive simulation service simulates packaging conditions and helps customers determine optimal solutions for shelf-life protection, all while keeping in mind important factors such as cost and speeding up time to market.

### Supporting sustainability objectives

As well as providing key practical advantages, the fact IDC has been developed to reduce the number of components needed to have a complete desiccant system for pharmaceutical bottles equally offers environmental benefits.

There is no need for manufacturers to incorporate drop-in desiccants, a process which involves acquiring more parts, insertion on the production line and induction sealing.

When we design and develop controlled atmosphere packaging solutions, we pride ourselves on considering every minor detail that could lead to a sustainability gain.

'Protecting today, preserving tomorrow' is the motto that underpins our activities. Indeed, it is more than just a strapline – as a company, we are aware of our responsibility to protect the environment as we seek to create solutions that will ultimately make life better for healthcare patients around the world.

A key part of this is minimizing raw material and energy consumption in both our own production processes and those of our customers who rely on our products.

This requires continuous assessment of how we operate, a process which always has us taking steps to make improvements.

For instance, in the latter half of 2022 we obtained the International Sustainability and Carbon Certification (ISCC) PLUS certification and ECOVADIS SILVER status at our plant in Romorantin, France. For 2023 Airnov plans to extend these certifications to other plants.

### Global reach

New solutions such as IDC typify our commitment to making products that will make a genuine difference to customers, their costs and environmental footprints. And with five manufacturing plants located in France, the US, China and India, Airnov can also ensure our products are never too far away from customers.

Our network is also bolstered by five sales offices and three dedicated research and development centers, further enabling us to deliver localized and personalized customer service based on clients' locations and needs.

Importantly, this allows us to supply IDC to customers all around the world, cementing our status as a trusted, reliable partner within critical pharmaceutical and medical supply chains.

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