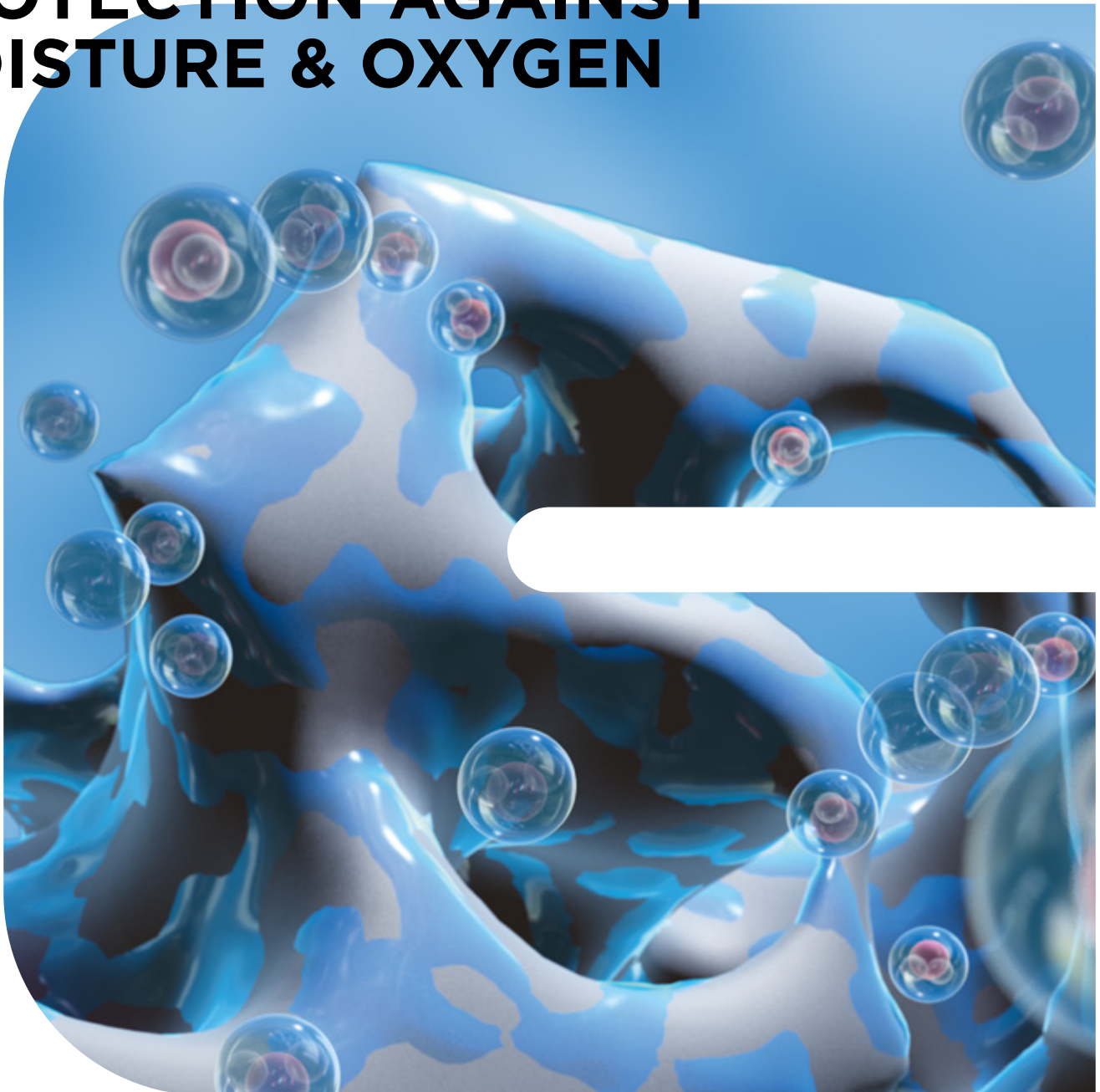


Healthcare Packaging **PROTECTION AGAINST MOISTURE & OXYGEN**



what is precious to you?

Maintaining product stability and shelf life for healthcare products with innovative controlled-atmosphere packaging



EXPERTS IN ACTIVE PACKAGING FOR HEALTHCARE

Clariant Healthcare Packaging provides critical industries with innovative controlled atmosphere packaging, principally to protect products from moisture and oxygen. Clariant's desiccant and active packaging products help global and regional pharmaceutical, nutraceutical, and diagnostic companies maintain product stability and prolong shelf life.

We are innovators with decades of experience developing technologies that incorporate active agents into product packaging to address specific and demanding market requirements for highly-regulated companies. Working in partnership with customers, Clariant employs simulation and calculation methods that take into account all relevant application parameters to determine the ideal protective packaging solution.

Clariant's high speed manufacturing and injection-molding processes follow the company's rigorous operational excellence program – Clariant Excellence – which includes strong quality assurance, adherence to Good Manufacturing Practices, full traceability, and a strong commitment to the environment.

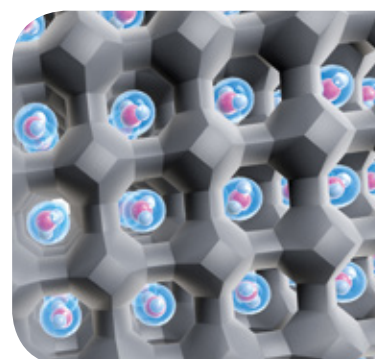
OPERATIONAL EXCELLENCE

- Operating under 6-sigma, 5S and continuous improvement methodologies
- Offering USP <670> compliant desiccants
- Flagship plants in Belen, U.S. and Romorantin, France ISO 15378 (cGMP) certified
- Global footprint includes major production plants in the U.S., France, China, and India as well as regional customer service sites allowing for close attention to customer needs and Business Continuity Planning (BCP)



ENGINEERED SORBENT SYSTEMS

- **Desiccants** and moisture adsorption systems include high quality silica gel and molecular sieve
- **EQ-PAK®** and **EQ-CAN®** provide calibrated humidity regulation
- **Oxygen scavenging systems** designed for use in low-RH packaging environments
- **Odor adsorption** via activated carbon
- **Combination** options available: 2-in-1 moisture/odor; moisture/oxygen
- **Advanced Desiccant Polymer (ADP®)** directly embedded into plastic material of packaging



Dropped-In

EFFICIENT AND STANDARD ACTIVE AGENTS

Active agents, in the form of canisters, capsules, and packets are designed to be dropped directly and efficiently into healthcare packaging. Innovative design and construction allow these components to be inserted automatically at high rates of speed.



CANISTERS

- High speed insertion
- Desiccants and odor adsorbers



CAPSULES

- High speed insertion
- Desiccants
- Equilibrium sorbents (EQ-CAN®)
- Oxygen scavengers



PACKETS & BAGS

- Automatable
- Hole punch detection
- Desiccants and odor adsorbers
- Equilibrium sorbents (EQ-PAK® & EQ-BAG™)

Integrated **ACTIVE AGENTS** **BUILT-IN AND STREAMLINED**

When the active agents are integrated into a closure or the bottom of a container, the need to insert a desiccant is eliminated and the packaging process is streamlined. This method is widely used to package effervescent tablets and diagnostic strips. Tubes and Desiccant Stoppers include a line of Handy Active Tubes (HAT®) that feature ergonomic flip-top functionality. For bottles, Clariant's Integrated Desiccant Closure (IDC®) is ideal.



TUBES & DESICCANT STOPPERS

- Ideal for effervescent tablets, lozenges, and tablets
- Stoppers available with desiccant, tamper evidence, spiral compensator, hinge cap (HAT® SNAP), or hot stamping
- 6-color offset tube printing



DESICCANT WASHERS & INSERTS

- Snapped into bottom of bottle caps
- Available separately or pre-assembled to a cap



INTEGRATED DESICCANT CLOSURE (IDC®)

- Several critical functionalities integrated into one container-closure system
- Built-in desiccant, tamper evidence, child resistance, and ergonomics

Embedded PROTECTION MOLDED DIRECTLY INTO PLASTIC

Clariant's Advanced Desiccant Polymer (ADP®) and unique multi-layer molding capabilities provide increased protection from within the container or device itself. ADP® technology embeds desiccant directly into plastic material and is deployed within diagnostic vials or in test kit or delivery system components. High barrier copolymers like EVOH are molded within multi-layer systems to greatly enhance oxygen protection.



ADP® COMPONENTS

- Can be molded into any functional part of a device or assembly
- Unlimited number of shapes possible to fit in tight spaces



DIAGNOSTIC VIALS

- HAT-IN® vials lined with ADP® for uniform protection
- Both standard vials and customization available



OXY-GUARD® BARRIER BOTTLES

- 6-layer extrusion blow-molded (EBM) bottle providing high barrier to oxygen and moisture
- Barrier material based on Ethylene Vinyl Alcohol (EVOH)

CLARIANT INTERNATIONAL LTD
HEALTHCARE PACKAGING

healthpack@clariant.com



WWW.CLARIANT.COM/HEALTHPACK

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