



Moisture barrier for sustainable packaging



Background

Amcor Flexibles is a leading producer of flexible packaging solutions for food, beverage, healthcare, and home/personal care markets. With a substantial presence globally, Amcor Flexibles utilizes various materials and processes to produce high barrier sustainable packaging.

Amcor Flexibles is exploring a variety of materials for a new generation of fully recyclable and home compostable packaging solutions, with fiber-based materials (e.g., paper) representing at least 80% of the final structure and the remaining 20% providing functionality in the form of coatings, extrudates or films.

Unfortunately, many of these new compostable materials lack the desired level of moisture barrier required to meet the targeted shelf life for our products. Conventional solutions for improving the moisture barrier of flexible packaging limit the compatibility with recycling streams or at-home compostability.

Amcor Flexibles is committed to addressing these challenges by cooperating with companies providing water vapor barrier technology for a range of sustainable substrates, primarily focusing on paper but also exploring other compostable materials, such as PBAT (polybutylene adipate terephthalate), PBS (polybutylene succinate), PCL (polycaprolactone), and PHA (polyhydroxyalkanoates). Our goal is to protect package contents from the outside environment while ensuring sustainability remains central to our packaging solutions.

What we're looking for

We are seeking improved moisture barrier solutions for flexible substrates that meet requirements for performance, cost, and end-of-life.

Solutions of interest include:

- Dispersion coating (applied via flexography or rotogravure printing)
- Extrudable resins or additives (cast or blown extrusion coating)
- Moisture barrier films
- Compostable polymers

Our must-have requirements are:

- Ideally provides Water Vapor Transmission Rate (WVTR) barrier < 50 g/(m²*day) at tropical conditions (38 °C, 90% rH) (ASTM F1249)

- Final grammage below 10 gsm
- Affinity with other materials (e.g., paper, bio-polyesters, other compostable materials)
- Certification or proof of feasibility for home compostability (e.g. TUV) and compatibility with paper recycling (supported by data)
- Capability of receiving regulatory approvals for FDA food contact and equivalent international certifications

Our nice-to-have's are:

- Compatibility with common packaging manufacturing processes (e.g., blown extrusion, cast extrusion, flexo/gravure lacquering)
- Proof of machinability on large scale proof-of-concept trials
- Effective barrier against mineral oil hydrocarbons (saturated: MOSH and/or aromatic: MOAH)
- Materials available at a scale with potential for commercial launch (starting with 20-50kT/year for extrusion coatings, ability to coat at least 10m sqm/year)

What's out of scope:

- Materials containing bisphenol A (BPA), per- and polyfluoroalkyl substances (PFAS), tris(4-methylphenyl) phosphate (TMPP) or other [substances of very high concern](#)
- Solutions not compatible with existing paper recycling streams or at-home compostability
- Materials subject to other restrictions (e.g., included on official negative lists)

Acceptable technology readiness levels (TRL): Levels 4-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

Sponsored research

Benefits:

Sponsored Research

Amcor has a Corporate Venturing and Open Innovation team that can support promising start-ups with investment up to 500,000 US\$.

Expertise

Amcor possesses industry leading experts in packaging design, engineering, materials science to provide guidance in development, prototyping, & testing and exposure to world's largest consumer brands.

Tools and Technologies

Amcor can provide access to state of the art R&D facilities & pilot equipment for designing, prototyping, & evaluating performance of injection & blow molded containers.

Facilities and Services

Amcor R&D pilot facilities include variety of manufacturing platforms, lab testing equipment, simulation capabilities.

Who we are

We solve packaging challenges, around the world every day. We develop differentiated products, services and processes to protect your products and the people who rely on them, all around the globe. Drawing on unrivaled heritage in design, science and manufacturing, more than 1000 R&D experts are innovating new materials, formats and technologies to better protect your products. In 2018 we pledged to develop all our packaging to be recyclable or reusable by 2025. On our journey to our 2025 pledge we are innovating across various sustainability options, delivering you more sustainable packaging solutions under the new EcoGuard™ brand.

Reviewers

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