



Jorge Balthazar, vice president and general manager filtering media, SWM International.

Evolute, the Sustainable Filter Solution of the Future

By Thomas Schmid

Jorge Balthazar is a vice president of SWM International and the general manager of the firm's filtering media growth platform. He looks back on more than 30 years of experience, having held leadership roles with the company in sales and marketing, global account management, business development, and general management across various market regions. His expertise is pivotal in leading an experienced, dedicated team to position SWM's Evolute®, an innovative and sustainable range of filtering media solutions that aims at becoming the future industry standard.

Tobacco Asia (TA): *Why did SWM International see the need to develop Evolute? What environmental or industry-specific challenges was SWM aiming to address?*

Jorge Balthazar (JB): Filtering media represents up to 70% of a cigarette butt's mass, and plastic cigarette butts accumulating in marine and urban environments are among the most littered items globally. SWM developed Evolute in response to these growing environmental concerns. The EU's Single Use Plastic Directive spurred demand for alternatives to cellulose acetate filters, which are plastic-based and persist in the environment for a very long time. Evolute was designed to offer a plastic-free, biodegradable, high-performance alternative to conventional filtering media solutions.

To reach these goals, meaningful changes are necessary; and sustainable filtering media such as Evolute are among the most straightforward opportunities to address shifts in consumer mind-sets, societal trends, and meeting environmental goals. These were the considerations that led SWM to invest and innovate to create with Evolute a brand-new standard for many decades to come.

TA: *How does Evolute fit into broader ESG frameworks or align with regulatory efforts focused on marine pollution and post-consumer waste?*

JB: Evolute aligns with ESG goals in several ways. In the environmental section, Evolute reduces Scope 3 CO₂ emissions by up to 80% compared to cellulose acetate filters and is certified "OK biodegradable marine and soil" by TÜV Austria. With regards to governance, SWM engages in international standardization efforts such as ISO TC126/WG25 to shape the biodegradability testing standards of tomorrow. In the area of regulatory compliance, Evolute is out of the European Union's SUPD scope as it is not defined as a plastic in accordance with Commission guidelines (2021/C 216/01) on single-use plastic as well as with Article 6 & 7 of the EU Tobacco Products Directive [TPD]. This positions Evolute as a proactive solution within ESG frameworks.

TA: *Let's delve a little deeper. What are the materials and production methods used in Evolute's filtering media? Does the media contain any adhesives or plasticizers, and what role does its wood cellulosic fiber base play in biodegradability and performance?*

JB: Evolute is indeed made from 100% natural components, primarily cellulosic fibers, which enables rapid biodegradation in marine and soil

environments. The manufacturing process involves web-forming technologies mastered by SWM and a new generation of filter makers that deliver an engineered material offering filtration performance comparable to cellulose acetate. Moreover, unlike traditional filter manufacturing with cellulose acetate, Evolute does not require any type of plasticizers, so the end product is a clean, fiber-based rod optimized for dispersibility and fast biodegradation.

TA: *Are there limitations in terms of tobacco product compatibility, taste neutrality or sensory impact for smokers?*

JB: Evolute has been tested across combustible cigarettes, heated tobacco products [HTP], roll-your-own [RYO] and make-your-own [MYO] segments. As we are aware, cigarette and tobacco product design is complex. But because SWM has a deep understanding of this subject, a product portfolio has been developed to match the needs of each product segment, rather than a “one-size fits all” approach. As a result of these efforts, taste neutrality and filtration performance can be maintained; pressure drop stability has been proven on industrial filter makers; and Evolute also matches sensory expectations, including both full-flavor and low-tar products. Our r&d team works with each customer to achieve optimized product performance and meet the desired consumer sensory experience.

TA: *What were the most challenging aspects of meet the requirements for the TÜV Austria certification, and how did Evolute overcome those challenges?*

JB: Marine biodegradation is notoriously difficult to achieve due to lower microbial activity and oxygen levels in water bodies, but also because of the shorter biodegradation timelines established by TÜV Austria, which prescribe full material disintegration in 12 weeks, and 90% biodegradation in 6 months. We tackled these challenges by using natural cellulose fibers that degrade efficiently, and which comfortably passed ASTM D6691 and OECD 202 tests for biodegradation and ecotoxicity. Furthermore, Organic Waste Systems [OWS], Europe’s leading biodegradability laboratory, validated Evolute’s performance.

TA: *How did SWM collaborate with OWS to validate Evolute’s biodegradability and ecotoxicity?*

JB: There were two steps. First, SWM contracted OWS to conduct extensive marine and soil biodegradation tests to the validate biodegradability performance of Evolute’s product range. And then partnered with OWS to assess the ecotoxicity of cigarette butts on aquatic organisms. The collaboration helped us attain robust scientific validation, reinforcing Evolute’s credibility.

TA: *You mentioned that biodegradation in seawater is significantly more difficult than in, say, a landfill. What makes Evolute succeed where other supposedly biodegradable filter media might fall short?*

JB: Evolute underwent rigorous testing mimicking marine conditions and it succeeded due to its natural fiber composition, which is more readily metabolized by marine microbes. Also, as mentioned earlier, it contains no synthetic additives that inhibit degradation.

TA: *Are there any environmental trade-offs with Evolute, for example in terms of carbon footprint or fiber sourcing, that consumers or regulators should be aware of?*

JB: Evolute offers significant environmental benefits, but potential trade-offs include the matter of fiber sourcing. While we require FSC® certification, any large-scale demand for cellulose could still pressure forest resources. Still, cellulose acetate likewise uses forest products before its chemical modification. There is also the end-of-life question. Evolute is designed for biodegradation, but not recycling, so that limits circularity. Nevertheless, SWM has the capability to run in-house life cycle assessments and, for the sake of transparency, is willing to address any of these concerns based on scientific data that demonstrates Evolute’s superior net value from an environmental point of view compared to any other solutions.

TA: *Are you familiar with alternative biodegradable filtering materials such as Genia by McAirlaids, or Greenbutts from the American firm of the same name? How do they compare to Evolute?*

JB: Yes, of course, we are familiar [with them] and it’s good that other companies are working on plastic-free solutions as well, because, all in all, it is imperative to reduce pollution caused by cigarette butt litter and support the industry’s journey in its transition [away from cellulose acetate].

I would add that choosing SWM and Evolute means partnering with a historical leader and expert in innovating new technologies that is fully committed to the tobacco industry. Our clients are benefiting from an engaged ecosystem of experts, OEMs, technology partners, standardization bodies, etc., all working together to accelerate the transformation. We are transparent, our strong eco-credentials are backed by good science and we closely collaborate with the tobacco industry’s scientific community to address any needs. Our solutions are adapted to specific requirements of each [tobacco] market segment. We have industrial scalability and supply security thanks to our multi-site setup and maintain systematic regulation and IP monitoring along with rigorous raw material assessment.

TA: *Will SWM be attending InterTabac 2025 and also exhibit Evolute there?*

JB: Yes. We will be in Hall 3 at booth D30, where our visitors will get the opportunity to discover our new generation of filtering media specifically developed for full-flavor cigarettes. They can also learn more about Evolute’s eco-credentials and product range expansion from our product manager, Alice Jaussaud, and our in-house scientist, Sandra de Jongh, who will be giving a presentation as part of the tradeshow’s conference program. Drop by! ➡