

# Internal affairs

*The European Union's phased restriction on food-contact bisphenol A (BPA) in packaging came into force at the end of last year and regulations were also tightened elsewhere. **Mark McCord** reports on how coatings suppliers are helping canmakers adopt high-performance alternatives*

**The past 12 months have been tumultuous for canmakers, with economic uncertainty, geopolitical tension and continued supply-chain stresses making for a difficult trading environment.**

One drawn-out saga, at least, has reached an end stage.

After much anticipation, the European Union's (EU) ban on BPA and other bisphenols used in metal packaging was adopted in December last year. Recognising the enormity of the task, the EU has set two transition periods of 18 and 24 months.

Single-use food contact packaging will have to transition by 20 July 2026, while packaging for specific exempted food, such as seasonally harvested fruits and vegetables and fish products, has an extension to 20 January 2028. This date is also significant to canmakers as it is also the time by which external can coatings must be BPA-free.

The changes are in response to concerns in Western markets over the past two decades that coatings using bisphenols – mostly epoxy phenolics – are harmful to human health. In addition, there will be more regulation on the use of synthetic per- and polyfluoroalkyl (PFAS) substances in internal coatings, following concerns internationally about the risks they pose to human health and the environment.

For example, the EU's Packaging and Packaging Waste Regulation (PPWR) that came into force in February, sets limits

for PFAS in food packaging at such a low level that they are unlikely to still be in use when the transition period closes in August 2026.

With such an unusual combination of events, coating manufacturer AkzoNobel is helping customers to think many years ahead.

"Manufacturers rightly want to avoid swapping to alternatives that contain substances which are later classified as materials of concern," says industrial coatings marketing director, Chris Bradford.

"Given the potentially high cost of switching to new coatings, AkzoNobel's latest generation coatings are designed to go beyond the imminent regulatory changes and eliminate future materials of concern, such as styrene, which will likely come under scrutiny in the longer term."

Netherlands-based AkzoNobel launched a range of new internal coatings under its Accelshield and Securshield portfolios last year that seek to provide the same protection performance, reliability and manufacturing efficiency of legacy solutions, but with fewer of the environmental and safety downsides.

The coating for beverage can ends, Accelshield 700, was AkzoNobel's first internal coating free of bisphenols (BPX non intent) and is applicable for a wide number of drinks, including those with high acidity or that require sterilisation processes such as yoghurt- and milk-based drinks and coffees.

"The application and end-conversion performance of Accelshield 700 is





similar to epoxy and it has good retort performance allowing for reduced complexity on the line with minimal changeovers," says Bradford.

Accelshield 300, is the company's latest spray coating that is free from materials of concern and Bradford says the company is working closely with canmakers in Europe and North America to launch a commercial rollout for the product this year.

"It far exceeds current regulations and delivers enhanced performance, giving the metal can manufacturing industry a viable and safe alternative," Bradford says, explaining that because the product has global brand approval from some of the beverage industry's leading brands, canmakers are reassured that Accelshield 300 is suitable for cans that are made and sold worldwide.

Accelshield 300 also helps canmakers and their beverage brand customers enhance their sustainability metrics because Bradford says that its use, in place of a conventional internal epoxy coating, reduces the carbon footprint by more than 25%.

Bradford says that Akzo Nobel's Securshield 500 series is used by the



Chris Bradford, Akzo Nobel's industrial coatings marketing director

world's largest easy-open end (EOE) manufacturers and has become the preferred non-BPA (also known as BPA-NI) and PVC-free internal coating system for food and pet food canners.

"It integrates into existing manufacturing processes for a wider range of packs and



Alain Cagnard, Eastman's global technical leader for TetraShield metal packaging

is suitable for a wide variety of metal food packs, which means coil coaters can use a single technology to meet the varying needs of many food can manufacturers," says Bradford.

Launched last summer, Bradford says the product has already gained "a



## Coatings

significant share of the EMEA Internal easy open ends market, offering considerable growth projections for 2025."

At a time of concern about how US tariff policy will effect trade and supply chains, Bradford says AkzoNobel has invested EUR32 million (USD36m) in its new plant at Vilafranca del Penedès in Catalonia, Spain, which produces bisphenol-free coatings for the metal packaging industry in EMEA. The facility will be fully commissioned by the end of June.

The company also has its eye on Asia, one of the world's largest markets for food packaging. Last year, AkzoNobel launched its first line for BPA-NI internal and external metal can coatings at its facility in Shanghai, China.

### Working together

Spain-based Jallut Pinturas was an early adopter of BPA-NI, as well as PVC- and PFA-free internal coatings for food two- and three-piece cans and easy-open ends.

Managing director Carlos Barbot says the company began the transition to these coatings as long ago as 2010, which means that when it comes to meeting strict environmental and regulatory standards, he believes the company has a competitive edge.

"We have an advantage because the market is moving towards PVC-free internal coatings and we already have a lot of experience with this technology," he says. "Our portfolio is very much focused on all polyester inside and out."

Although the canmaking sector has been on a path towards BPA-NI external coatings for some time, Barbot says it has been slower to follow Jallut's lead and remove PVC from internal coatings. This may be because alternatives tend to be more costly and there are questions about the efficacy of some products, but Barbot says that they are undoubtedly cleaner from an environmental perspective and, with the right chemical makeup, they are effective.

A challenge that all coatings providers face is the frequency of regulatory changes and requests from different authorities to alter the chemical makeup of the coatings.

Developing new coating formulations takes at least 18 months, after which time the coatings need to have pack tests over several years to ensure they are safe and meet regulatory requirements. During this testing period, authorities may change the regulations again, which means that



Eastman says its protective Tetrashield resin systems meet new regulatory requirements without sacrificing performance.

Credit: Eastman

companies developing solutions have to reformulate them and start the testing process from the beginning.

Barbot wishes for some longer-term thinking and consistency between jurisdictions when it comes to developing and adopting environmentally-friendly internal coatings.

"For example, if regulatory changes were limited to a five-year rolling schedule, everyone involved would have a clearly visible compliance pipeline," he suggests. "That would allow industry, retailers and regulators to find joint solutions to comply with new and evolving regulations."

### Ensuring high performance

Alain Cagnard, global technical leader for metal packaging at Tennessee-based coatings, inks and chemicals maker Eastman says that in recent years, the canned food industry has seen a "significant shift" to the adoption of non-hexavalent chromium surface treatment for tinplate.

This is driven by concerns about the environmental and health impacts associated with hexavalent chromium compounds during tinplate manufacture. In the EU and the UK the use of hexavalent chromium passivation comes with a time-limited permit and its application will be phased out completely in 2027.

A closure from Jallut Pinturas, which has more than 40 years in the food-grade coatings business

"The challenge with removing hexavalent chromium passivation is to keep the performance on critical properties after the coated sheet is transformed into a can end or can body," Cagnard explains.

There are also the difficulties surrounding the sterilisation process required to preserve canned food, particularly for products with a high acidic content.

"The coating needs to withstand a strong acid attack at a high temperature," Cagnard says. "Also, certain foods contain proteins which can degrade during the sterilisation process forming hydrogen sulphide that can react with the tin from the substrate if the coating does not offer a perfect barrier to the food."

Cagnard says that commercial coatings haven't always shown good performance levels when used on chrome-free passivation alternatives (CFPA), but says

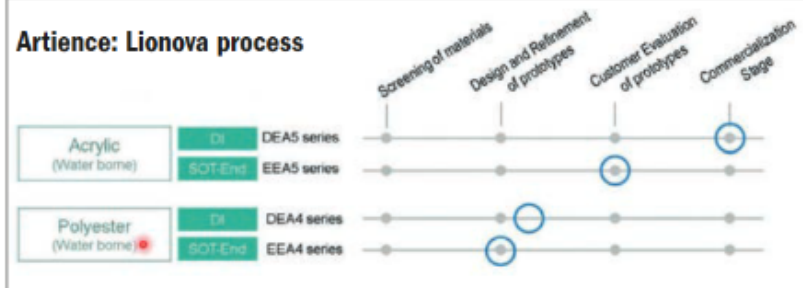


Credit: Jallut

## Artience coating types

		Resin	Cross-Linker	Coating Type
 Beverage can	Interior	Epoxy, Acrylic, Polyester	Phenolic	Water-Based
	Exterior	Acrylic, Polyester	Amino	Water-based Solvent
 Food can	Interior	Epoxy, Polyester	Phenolic	Solvent
	Exterior	Acrylic, Epoxyester	Amino	Solvent
 General can	Interior	Epoxy	Phenolic	Solvent
	Exterior	Polyester, Alkyd, Epoxyester	Amino	Solvent
 Industrial	Interior	Epoxy	Phenolic	Solvent
	Exterior	Acrylic, Alkyd	Amino	Solvent

## Artience: Lionova process



that US-based Eastman's latest generation of TetraShield resins enable the coating to successfully perform on CFPA tinplate.

"This prevents sulphur staining and helps ensure excellent chemical resistance to strong acidic packs," he says. "TetraShield protective resin systems require specific formulation guidance, as the highly important strengths around hydrolytic stability and high  $T_g$  (i.e. offering outstanding chemical resistance) counterbalance with a specific need for reactivity."

### Border-free coatings

Artience, the new name for the former Toyo Ink Group, supplies internal coatings for a range of metal packaging under its BPA-NI brand, Lionova.

Lionova uses two resin types: acrylic emulsion and polyester, which are FDA-compliant and can handle some of the most challenging production aspects, such as retort processing when beverage cans are heated to a high temperature under pressure to prevent spoilage.

Tokyo-based Artience's internal coatings are used by customers worldwide for beverage D&I cans and bottles and stay-on tab beverage ends. They are manufactured in Artience's facilities in Japan and China.

Toshitaki Yoshidomi, sales manager for the global can coating business, says BPA-NI products are important to customers – many of whom export globally – because

it means their coatings are compliant when they do business across borders.

New for this year is the final testing stage of polyester internal coatings for drinks cans, which Yoshidomi says is a coating that is already of interest to several of Artience's beverage customers.

"Acrylic BPA-NI lacquer for the interior of beverage cans is now for sale, while the prototype polyester-based solutions are being trialled," he says, explaining that it's a lengthy process because the coatings' performance will be assessed by a customer over a 12-month period.

As innovations for food can coatings developed in Thailand, Türkiye and Japan are approved, Yoshidomi says that Artience will expand its availability to other key markets, such as China and Korea.

Already, Artience offers internal sprays for food cans that are able to handle a wide variety of contents and can be deployed in clear, white, gold, or silver colours.

### Personal approach

Coatings provider Novaresine says many of its products are the result of bespoke chemistries developed with customers.

One such example is the trial that began last year of a new internal can coating for two-piece beer and beverage cans, which also has application in three-piece cans.

"The experimentation is ongoing, as the pack tests are long and require particular

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Jallut Pinturas makes food-grade internal coatings for a range of metal packaging



Internal coatings applied to three-piece food cans from Spain-based Jallut Pinturas

application methodologies," the Italy-based company says. "The results are good in terms of chemical resistance and now we are facing the application part, which is perhaps the most challenging."

Novaresine says that customer requests for high-performance sustainable coatings have been given added impetus by next year's definitive ban on BPA. "The demand for sustainable and innovative packaging is likely to increase in the year ahead, especially in response to stricter sustainability regulations emerging in many regions."

The company says that this is further fuelled by calls from customers and their consumers for packaging that has the best sustainability credentials possible.

Novaresine's Novasylt Q900 series of saturated polyester resins for coil and metal coatings such as beverage, food and bottle cans, comprises four products. Q901, which reached the market in September 2023, is the forefather which the company says is selling well and is meeting most customer needs. Nonetheless, Novaresine is looking ahead and developing a new line of solvent and water-based resins at its dedicated research and development laboratory at Veneto in northern Italy.

### Wine and regulations

This year promises to be busy for PPG, which aims to launch the equivalent of a new packaging coating for every month. Earlier this year the US-based company expanded its non-BPA Hoba Pro internal coatings portfolio with the release of the Hoba Pro 2848 for aluminium packaging used in beverages, food and personal care products and expanded its worldwide offer of Innovel EOE coatings for aluminium beverage cans.

One of Hoba Pro 2848's successful applications is in the wine industry, where the sulphites contained in the beverage

were previously an issue for producers that wanted to fill in aluminium bottles.

"Manufacturers have found it challenging to preserve the sensory properties of wine without a robust coating solution," says Hella Neffati Gourven, packaging coatings global strategic market manager for personal care products at PPG. "PPG Hoba Pro 2848 proved to be a successful internal coating for this collaboration."

Neffati sees internal coatings for aluminium bottles as a growth sector and cites their adoption by international brands such as the supermarket chain Aldi and membership-based retailer Costco. She says that consumers are drawn to aluminium bottles because they are easy to recycle and, thanks to decoration techniques that can be applied from the cap to the base, they often stand out favourably from other packaging types.

Market researcher Euromonitor International found that metal bottles were the second fastest growing pack type in global beverages between 2018 and 2023, with a 12% retail unit volume compound annual growth rate.

PPG is one of the world's largest suppliers of internal coatings and it invests heavily in developing new products. The company's R&D budget totalled USD447m last year and Neffati says its focus is on enhancing coatings that reduce materials of concern, including PFAS, BPA and other bisphenols, to meet evolving regulations around the world.

"We're also committed to developing industry-leading innovations that support our customers' sustainability ambitions, which is why we've continued to explore alternative cure and water-based solutions with higher durability and simplified application," she says.

Charles Turner, global director of food contact and regulatory affairs at PPG, says five major territories often influence food

contact regulations. The EU's BPA ban, due to take effect in July 2026, means the bloc has the most advanced regulations, but Turner says China and Japan have the most established standards in the Asia Pacific region and updated regulations are coming into effect this year.

"These updates typically align with regulation requirements in other regions, especially Europe, including risk-based assessments and material disclosures," Turner says.

While BPA is not banned in all US states, Turner says, "the FDA has faced increasing pressure to reassess its Generally Recognized as Safe (GRAS) determinations and adopt stricter oversight. Also, six states have pushed through legislation to reduce or eliminate PFAS in consumer goods".

In South America, he says: "Brazil is the most active and often follows regulations coming out of the EU and the US." With the influence of Mercosur, informally known as the common market of the south, Turner says the region is moving toward BPA labelling and stricter food-contact regulations.

### More information:

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