

Food-contact compliance and recyclability in focus for coating

From food-contact compliance to design-for-recycling, Piyush Gupta, business head, Cosmo Speciality Chemicals, discusses with **Rahul Kumar** the forces reshaping coating technologies

Packaging coatings are no longer evaluated only for gloss, adhesion or barrier performance. Sustainability mandates, food safety regulations, and circular economy targets are increasingly influencing coating development. For Cosmo First, the approach is to build regulatory readiness and environmental considerations into formulations from the outset rather than treat them as separate objectives.

Performance without compromise

A key question for coating suppliers today is how they balance sustainability demands with the need to maintain technical performance.

Piyush Gupta, business head, Cosmo Speciality Chemicals, says, “We approach the balance between high-performance coatings and evolving sustainability expectations as an integrated formulation challenge rather than a trade-off.” He explains that the company’s portfolio is built primarily on water-based chemistries, which inherently enable low volatile organic compound (VOC) emissions compared to conventional solvent-borne systems, while still delivering the gloss, clarity, adhesion, and barrier properties that converters demand.

He further explains, “By optimising resin selection, additive systems, and coating architecture, we ensure strong ink adhesion, oil and grease resistance, moisture barrier, and rub resistance,” with performance validated through rigorous laboratory and real-world testing.

On sustainability priorities, Gupta states that the company is proactively advancing low and low VOC systems to align with tightening environmental and workplace safety standards. He adds that Cosmo First is evaluating and, where feasible, transitioning away from legacy chemistries such as PFAS-related additives while also exploring bio-based and renewable feedstocks.



▲ **Piyush Gupta, business head, Cosmo Speciality Chemicals**

Compliance becomes a design principle

As regulations tighten globally, coating suppliers are also being challenged to build compliance directly into product design. Gupta says, “Our coating portfolio is designed with regulatory alignment embedded at the formulation stage,” supported by structured compliance validation and continuous monitoring of global policy developments.

He explains that frameworks such as the EU’s Packaging and Packaging Waste Regulation are pushing higher recyclability thresholds and circular design requirements. In response, water-based barrier and functional coatings are being engineered to support design-for-recycling principles.

For paper-based applications, Gupta

says the focus remains on maintaining repulpability and minimising coating load. In flexible packaging, support for mono-material structures aligns with established recycling streams. He adds that such approaches also support the evolving demands of extended producer responsibility (EPR) regimes.

Food-contact compliance remains another area of increasing focus. Gupta explains that formulations are screened and managed in line with REACH (registration, evaluation, authorisation and restriction of chemicals) requirements, including ongoing review of substance restrictions and substances of very high concern (SVHC) updates. Gupta states that tighter recyclability benchmarks, stronger chemical scrutiny and broader implementation of EPR fee modulation mechanisms are expected over the next three to five years.

Recyclability moves to the centre

Another major issue is the impact coatings have on recyclability and material recovery. Gupta says the company’s coating portfolio prioritises recyclability, low-emission chemistries and food-contact readiness from the outset of formulation design.

For paper-based applications, he explains that water-based oil and grease resistant barrier coatings are designed to preserve repulpability and enable fibre recovery within standard recycling streams. Formulations are also developed to avoid interference with recycling and de-inking processes.

For mono-material polyolefin structures such as PE and PP, Gupta states that coatings are formulated to be compatible with recycling-oriented designs while ensuring functional layers do not negatively impact sorting, mechanical reprocessing or recyclate quality.

Looking ahead, Gupta says the industry is likely to see tighter design-for-recycling benchmarks and increased scrutiny on material compatibility within recycling streams. ■