

Company: ContainerGrid GmbH

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Title: Software Platform to manage Closed-Loop Take-Back-Systems at Scale

Abstract

Recycled-content targets, design for recyclability, and mounting regulatory pressure (for example the new End-of-Life Vehicle Regulation and the PPWR) are fundamentally shifting what the polymer industry has to deliver. To secure reliable access to high-quality secondary material, material producers and manufacturers are increasingly building their own take-back systems and circular supply chains. In practice, though, these systems often fail to scale: take-back requires coordination across many partners, reverse logistics is expensive, and reliable proof of origin is missing. Composites make the picture harder still, as they are especially difficult to recover at high value.

This contribution introduces ContainerGrid, a software platform that runs take-back systems end to end, from collection rules to certified recycling output. Two building blocks sit at its core. The Orchestration Engine coordinates the reverse supply chain: every end-of-life event automatically triggers a decision on the appropriate R-strategy, assessed against technical, economic, and ecological criteria. It steers each material flow to the best-matched recycling partner and site and bundles volumes into efficient batches. The Virtual Material Account forms the digital ledger beneath it: it traces every fraction back to its source and pickup location, defines ownership across each hand-off, and consolidates scattered collections into contract-grade lots with audit-ready compliance proof.

The talk shows how scattered take-back and regulatory pressure become traceable, contract-grade recyclate, steered deliberately to the right partner and process. Participants will learn how a governed take-back system secures proof of origin, chain of custody, and volume visibility across the entire network, how external data such as the digital product passport can be integrated in future, and how manufacturers can build reliable access to high-quality secondary material this way.