

Packaging recyclability: fundamentals, assessment and implementation in industrial procurement

Packaging recyclability describes the extent to which a packaging can be materially recovered after use and returned to existing recycling systems. For industrial buyers, it is no longer a purely ecological issue but a regulatory and economic criterion in packaging specification and supplier selection. Those who anchor recyclability early in the procurement process reduce disposal costs, licence payments and supplier risks at the same time.

Key facts

- Recyclability results from the type of material, design, additional components and the availability of practical recovery routes.
- In practice, mono-material solutions are typically considered more recyclable than composite packaging.
- Packaging-related regulatory requirements in the EU, particularly packaging legislation and extended producer responsibility, increase the documentation effort.
- Buyers should include recyclability as a measurable requirement criterion in technical specifications and bid evaluation.
- Non-recyclable packaging frequently causes higher disposal costs and licence fees.

Definition: packaging recyclability

Recyclability refers to the suitability of a packaging to be efficiently collected, sorted and materially converted into new products after use. It is not merely a material property but the result of design, market systems and recovery infrastructure.

Distinction from recovery and disposal

Recyclability is a potential property; recycling itself is the actual process. A packaging may theoretically be recyclable but is not recycled in practice if sorting, collection logistics or offtake markets are lacking. For buyers, what matters is therefore the practical recoverability in the respective target country, not the purely technical possibility. The difference between recovery (energetic or material) and recycling (material) is legally relevant and relevant for reporting.

Legal framework in the DACH region

In Germany, the Packaging Act and the EU Packaging Regulation (PPWR) regulate requirements for packaging, including design-for-recycling provisions and quota targets. Manufacturers and distributors bear the costs of disposal under extended producer responsibility, which may be tiered according to recyclability. In Austria and Switzerland, comparable systems with licensed collection and recovery schemes apply. Buyers should always review the specific obligations and deadlines on a case-by-case

basis with the compliance and legal departments, as details may change.

Relevance for procurement

Packaging is often an underestimated cost item in industrial categories, with a direct impact on procurement logistics and disposal. Recyclability links the sustainability goals of one's own organisation with supplier evaluation. It should be part of the demand assessment before initial quotations are requested.

Methods and approach for assessment

The assessment of recyclability follows a structured approach: material analysis, design assessment, alignment with recovery systems and documentation. Only then can requirements be formulated in a verifiable manner.

Material and design assessment

The focus is on material selection and design. Mono-materials such as corrugated board, PP or PET containers are typically considered highly recyclable. Composite materials, heavily printed films, sealants, labels made of foreign materials and mixed plastics complicate sorting. Format and size also matter: small parts below common sorting thresholds are frequently sorted out in practice. A practical rule-of-thumb comparison: lids, labels and adhesive components should be as low as possible in mass and materially compatible.

Assessment criteria and checklists

Assessment schemes often classify packaging into levels from "fully recyclable" to "not recyclable". Typical assessment criteria are: mono-material share, separability of components, accessibility for sorting facilities, toxicity and absence of harmful substances as well as availability of collection and recycling systems. Buyers can incorporate such criteria into a Category Playbook and thereby define binding requirements per material group.

Integration into procurement processes

Recyclability belongs in the demand notification and technical specification at an early stage, not only in bid evaluation. In tenders, the Bid Matrix can be used to ensure that providers state recyclability as a separate, evaluated criterion. Data quality is crucial: supplier statements should be substantiated by samples, packaging sheets or test reports. For the sourcing maturity level of a category, it is a clear signal when packaging requirements are standardised.

Key KPIs for recyclability

Without measurable metrics, recyclability remains a statement of intent. Procurement organisations in practice rely on a few, reliably capturable indicators.

Volume- and material-related metrics

Key metrics are the share of recyclable packaging mass in total packaging volume, the mono-material share and the share of packaging that is materially recovered rather than energetically utilised. In addition, the share of secondary raw materials (recycled content) serves as a design metric, even though it does not replace recyclability. These values can be well presented in the material group hierarchy per category.

Cost and process metrics

Economically relevant are licence and disposal costs per packaging unit, as scheme-based systems often differentiate fees according to recyclability. The share of non-sortable residues, maintenance costs at facilities caused by contaminants and customer satisfaction with packaging along the goods flow complete the picture. In procurement controlling, the contribution of packaging decisions to Total Cost of Ownership can thus be demonstrated.

Risks and controls

Recyclability entails operational, legal and reputational risks. Controls focus on supplier selection, contract design and ongoing monitoring.

Supplier risks

Suppliers sometimes state recyclability optimistically, for example because a concept is recyclable but no practical recovery infrastructure exists. To avoid duplicates and inadequate statements, evidence should be required: material data sheets, evidence of system participation and assessment schemes. For critical packaging suppliers, a structured assessment process verifies the statements. For supplier consolidation, the following applies: the fewer and more stable the packaging suppliers, the easier it is to secure quality.

Contractual safeguards

Packaging requirements belong in framework agreements and call-off agreements, not only in technical specifications. Useful clauses are product and packaging specifications with evidence requirements, rights in case of deviations, price adjustment clauses for recycle price volatility as well as obligations to cooperate in documentation. Those who wish to keep supplier requirements flexible combine these with a tiered evaluation concept that includes recyclability as a requirement criterion.

Operational control

At goods receipt, compliance with packaging specifications can be checked by random sampling. Deviations can be systematically analysed using 5 Why: Is a specification, a piece of information or a control missing? Recurring deviations lead to supplier evaluation and, if necessary, alternative sourcing. Within the Digital Supply Chain approach, packaging data can be managed as master data and checked periodically.

Current developments and outlook

Regulatory tightening, recycle markets and digitalisation are significantly changing the requirements for packaging in industrial procurement.

Regulatory dynamics

The EU Packaging Regulation progressively tightens requirements for recyclability and recycled content and introduces uniform labelling. For industrial companies this means: packaging specifications must be updated periodically to cover supplier changes and product modifications. Buyers should monitor trends and plan budget reserves for packaging redesigns, as redesign costs are frequently underestimated in practice.

Recycled content and new material options

Functioning recycling loops create demand for secondary raw materials and open up new procurement options. For industrial packaging such as transport cartons, pallet boxes or pallets, the following applies: reusable returnable systems significantly reduce packaging effort, but place demands on returns logistics and Carrier Performance. Buyers should weigh single-use recycling against reusable systems when choosing packaging – a classic make-or-buy question at packaging level.

Digitalisation and data situation

Packaging data can increasingly be managed digitally and linked with procurement platforms. For transatlantic or globally active suppliers, master data such as the D-U-N-S Number (DUNS) complements supplier evaluation, while Delivery Performance and Carrier Performance measure implementation in the logistics flow. A consistent data inventory is a prerequisite for reporting recyclability in a traceable manner across product groups.

Implementation in the procurement process

For recyclability to be effective, clear responsibilities, verifiable requirements and anchoring from request to contract are needed. In practice, a combination of category guide, standardised requirement templates and supplier evaluation has proven effective.

Formulating and comparing requirements

Including recyclability as a measurable criterion in tenders is the most effective lever. Providers state their packaging solution in the bidding phase and present evidence. With bid evaluation levels, recyclability can be assessed with weighting without excluding the price level. Non-Binding Offers in the early phase of a request help to explore feasibility and alternatives at low risk.

Contracts and ongoing management

Packaging specifications that have been won are transferred to Digital Contract Management and are bindingly referenced in call-offs. Changes to the packaging by the supplier require approval. Those who standardise packaging requirements in direct sourcing and the Category Playbook reduce review effort for each new order. In any case, it goes without saying that changes in packaging design should be coordinated with the packaging, sustainability and logistics functions.

Typical metrics

Share of recyclable packaging mass: > 90 %

Typical target benchmark in advanced categories; in practice highly category-dependent.

Mono-material share: > 95 %

Frequently defined as a design criterion for transport and protective packaging.

Recycled content in cardboard and paper packaging: 80–100 %

Common in practice for corrugated board and cardboard, depending on availability.

Disposal and licence costs per packaging unit: Differentiated by recyclability

Scheme-based systems often tier fees according to recoverability.

Practical example

A mid-sized mechanical engineering company with around 200 active suppliers identifies in a category analysis that a significant portion of its transport packaging consists of composite materials and that disposal costs per shipment vary. Without an overarching packaging strategy, each supplier specifies its own solutions, making tenders and disposal inefficient.

- Definition of a packaging standard per material group (transport cartons, protective units, pallets) with recyclability as a mandatory criterion.
- Inclusion of packaging requirements in a Category Playbook, taken into account in demand notification and technical specifications.
- Tender via Bid Matrix with recyclability as an evaluated criterion and evidence requirement in the bidding phase.
- Anchoring of the specification in framework agreements with Digital Contract Management and random sample checks at goods receipt.

Conclusion

Packaging recyclability is a procurement topic with measurable impacts on costs, compliance and supplier risks. It can only be reliably managed if requirements are anchored early in the process and formulated in a verifiable manner. Mono-material design, practical recoverability and documented evidence are the three pillars of an effective packaging strategy. Buyers should integrate recyclability as an evaluated criterion in tenders, contracts and supplier evaluation. This creates a transparent, economically viable contribution to the organisation's sustainability goals.

Frequently asked questions

What exactly does packaging recyclability mean?

Recyclability describes whether a packaging can, after use, be efficiently collected, sorted and converted materially into new products. It depends on the material, design, additional components and the availability of recovery systems. Accordingly, packaging is recyclable if, in practice, a functioning recycling loop exists.

Which packaging is particularly recyclable?

In practice, mono-material packaging such as corrugated board, PP or PET containers is considered highly recyclable, especially when free of significant foreign components. Composite materials, heavily coated films and mixed plastics are typically problematic. Packaging size and compatibility with sorting facilities also influence the outcome.

How do you assess the recyclability of a packaging?

Assessment typically takes place based on criteria such as mono-material share, separability, absence of harmful substances and the availability of collection systems. In addition, suppliers provide material data sheets, assessment schemes and evidence of system participation. In practice, a checklist used in tenders and goods receipt inspections has proven effective.

What role does recyclability play in industrial procurement?

Recyclability influences disposal costs, licence fees, supplier selection and sustainability reporting. Buyers should incorporate it as a measurable criterion in demand notification, tendering and contracts.

This allows packaging quality to be managed systematically rather than left to the chance of supplier selection.

What legal requirements apply to recyclable packaging?

In Germany and the EU, the Packaging Act and the EU Packaging Regulation set out requirements, including design-for-recycling provisions and quota targets. Manufacturers and distributors bear disposal costs under extended producer responsibility, which may be tiered according to recyclability. The specific obligations should be reviewed on a case-by-case basis with the compliance or legal department.

Is the use of recyclates in industrial packaging worthwhile?

Recycled content complements recyclability but does not replace it, because a high recycled content in non-recyclable packaging contributes little to the recycling loop. Economically, the use of recyclates depends on recycle prices and availability, which can be volatile. For transport cartons and pallets, secondary raw materials are already established in practice and are frequently cost-neutral or cheaper.