

# **Sustainable Raw Materials Management and Programs**

The purpose of utilizing sustainable raw materials is to ensure that the materials used in the production process comply with the Sustainable Development Principles covering environmental, social, and economic dimensions. This approach begins with preventive measures at the source and applies a life cycle perspective to analyze and evaluate the various stages of material utilization. When resource utilization is maximized, materials naturally enter appropriate circular pathways, thereby reducing waste generation and minimizing associated environmental and social impacts.

In Advantech's raw material procurement strategy, in addition to considering costeffectiveness, we also conduct sustainability risk assessments to establish procurement priorities and ensure the implementation of sustainable management. We work closely with suppliers to enhance the transparency of raw material sourcing, assess the potential environmental and social impacts of their development and production processes, and select raw materials that best meet Advantech's requirements based on the results of supplier sustainability risk evaluations.

In the third quarter of 2024, Advantech launched a Sustainable Raw Material Project, beginning with traceability assessments and evaluating the use of recycled materials. The project introduced recycled materials into pilot programs across major business units. Extending into the first quarter of 2025, the project has achieved key milestones, including raw material traceability statistics, evaluation of pilot implementation results for the introduction of recycled materials in product structural components, and the preliminary formulation of future goals.

Regarding raw material traceability, considering the characteristics of Advantech's products, we prioritized the top three raw materials by usage volume—plastic, steel/iron, and aluminum—for management. These three types of recycled materials were incorporated into the Sustainable Raw Material Pilot Program. In addition to managing structural components, we also conducted traceability investigations on packaging materials.

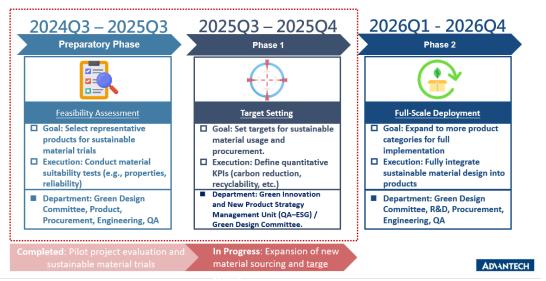
# Purpose

1. Natural Resources Protection: Ensure that the use of raw materials does not deplete natural resources and that ecological balance can be maintained over the long term.



- 2. Carbon Footprint Reduction: Select low-carbon or carbon-neutral raw materials to help reduce greenhouse gas emissions and address climate change.
- Circular Economy Promotion: Support the use of renewable raw materials and recycled materials to help establish a circular economy model and reduce the demand for virgin raw materials.
- Advantech Sustainable Material Advancement Roadmap

## Advantech Sustainable Materials Implementation Roadmap



#### The 2024–2025 Advantech Sustainable Raw Material Plan is as follows:

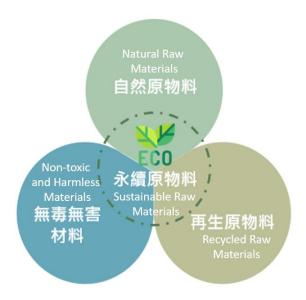
ASPECT	Actions		
Sustainable Raw Material Policy	✓ Update policies in alignment with domestic and international sustainability		
Updates		trends and regulatory requirements, progressively translating external	
		requirements into internal commitments and practical actions.	
Sustainable Raw Material	✓	Expand the availability and sourcing channels of sustainable raw materials.	
Procurement and Management	✓	Proactively manage supplier performance and raw material sourcing	
		transparency.	
Sustainable Raw Material Pilot	✓	Conduct ad-hoc cross-departmental communication meetings to	
Projects		consolidate consensus, address challenges, and ensure execution.	
	✓	Introduce sustainable raw materials (e.g., recycled plastics, recycled metals)	
		into selected representative products within core business units, targeting a	
		recycled material adoption rate of approximately 13%–30%.	
Supplier Engagement	✓	Implement the annual supplier engagement plan, incorporating topics such	
		as carbon reduction, circular economy, sustainable supply chain, and green	
		product into supplier guidance and training programs.	
Sustainable Raw Material Usage	✓	The Green Design Committee will design incentive mechanisms to positively	
Target Setting		motivate and facilitate the achievement of established targets.	



Internal Stakeholder Training on Sustainable Raw Materials From 2024 through the first half of 2025, members of Advantech's Sustainable Raw Material Project Team(comprising members from the Green Product Department, Corporate Sustainability Office, Procurement, Operations, and other relevant functions) will participate in external training programs related to sustainable raw materials. These activities include, but are not limited to, seminars, workshops, lectures, and corporate visits.

- ✓ Participate in the Ministry of Environment's Circular Electronics Products Strategic Alliance working meetings and training sessions to gain insights into the amendment of the Resource Recycling Promotion Act, green design, the incorporation of recycled materials into products, product digital passports, and other emerging topics and working group activities.
- ✓ Attend the European Union's "Sustainable Products Initiative" seminar on new trends in battery product passports.
- ✓ Organize benchmarking study sessions and visit leading enterprises to exchange knowledge and best practices in circular economy, green products, and sustainable raw materials.
- ✓ Attend the Asia Packaging Industry Sustainability Strategy and Green Business Opportunities Forum to learn about the latest applications of sustainable plastics, the Global Plastics Treaty, and innovations in recycled material applications.

## Raw Material Usage Priority: Sustainable Raw Materials



#### 1. Definition of Recycled Materials:



Recycled materials refer to materials recovered, reprocessed, or reused from waste or discarded products through recycling, re-manufacturing, or repurposing processes. These materials originate from either pre-consumer waste (generated during manufacturing) or post-consumer waste (generated after a product's end of life). Following appropriate processing, they are used in the production of new products, thereby reducing reliance on virgin resources and minimizing environmental impacts.

2. Advantech's Definition of Recycled Materials:

Advantech accepts only Post-consumer material (PCR). This approach aligns with the requirements of the EPEAT and the EU Packaging and Packaging Waste Directive, and is guided by the following circular economy principles:

- (1) Extended Resource Use: Utilize resources that have been used and subsequently recycled, reducing the need for virgin material extraction.
- (2) Lower Environmental Impact: PCR sources help reduce carbon emissions and energy consumption.
- (3) Avoid Greenwashing
- (4) Compliance with ESG and Supply Chain Requirements: In response to increasing emphasis from global enterprises and regulatory bodies on PCR content percentages, Advantech distinguishes PCR materials in accordance with part number coding specifications.

#### 3. 2024 Raw Material Usage Status:

Raw Material Category		Raw Material Usage (ton)	Proportion of Recycled Material Used (%)
Structural	Plastic	121.510	0
Materials	Steel/Iron	599.095	0
(ton)	Aluminum	170.244	0
Packaging	Plastic Bags / Bubble Wrap	10,297,701	0
Materials	Paper Cartons	6,289,309	90
(pcs)	EPE Cushioning Material	8,979,745	0

#### Action Plan:

- Use of Sustainable Raw Materials
- (1) Replace plastic with metal for external mechanical components.
- (2) For products under 5 kg, replace EPE cushioning with paper-based or molded pulp packaging materials.
- Reduction of Toxic and Hazardous Substances in Raw Materials

Refer to Advantech Green Policy – Hazardous Substance Reduction Program for details.

■ Source Management – Integrating Raw Material Management into Green Product Design Mechanisms

For example, the adoption of recycled materials.



Refer to Advantech Green Eco-Design Guidelines for details.

- Supply Chain Information Transparency
- (1) Raw Material Origins: Disclose the origin, suppliers, and production processes of raw materials.
- (2) Supply Chain Management: Establish transparent and robust relationships with suppliers to ensure access to accurate raw material information.
- (3) Accurate Raw Material Information: During part approval, require the provision of relevant raw material information to ensure traceability, quality assurance, and sustainability of the production process.
  - \*Metal Components: Must be accompanied by the corresponding Mill Test Certificate (MTC) to verify raw material compliance.
  - \*Products Using Post-Consumer Recycled (PCR) Materials: Must obtain third-party certification to verify recycled content and ensure sustainability.

\*Design for Reduction and Use of Sustainable Materials: To make a tangible contribution to biodiversity conservation, deforestation prevention, and land protection, Advantech requires key packaging material suppliers to obtain FSC™ Chain of Custody (CoC) certification. As of 2024, FSC™-certified paper materials have been successfully applied to the packaging cartons of one network product model. Advantech is also capable of offering customers alternative sustainable paper carton options beyond standard recycled paper cartons.

#### **4** 2024 Performance:

- Halogen-free plastic components accounted for 91.2% of the structural plastic parts in annual product sales.
- Achieved a 90% success rate in replacing EPE cushioning with paper-based or molded pulp packaging materials for products under 5 kg.
- Newly developed models adopted Advantech's low-halogen requirement for external mechanical components.
- Achieved 100% compliance of raw materials with international environmental regulations and Advantech's controlled substances standards.
- Representative products were selected by product category for the introduction of recycled materials, with trial production scheduled for 2025.
  - Fanless Embedded Computers (ARK-1125C, ARK-1222): External mechanical components used steel containing 13% recycled content, with recycled materials accounting for 3.2% of the total product.
  - Panel PC (GSC-7153W) and Medical Device (POC-6) used 30% PCR plastic in external components, with recycled materials accounting for 9.4% of total



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product weight (medical device passed more stringent chemical resistance tests).



#### Reducing Negative Environmental Impacts

- Supply Chain Management: Key suppliers are required to obtain ISO 14001 certification.
- Selection of Sustainable Raw Materials: Prioritize the use of sustainable raw materials such as recycled plastics and recycled metals.
- Adoption of Clean Production Technologies: Implement green manufacturing methods to reduce emissions and pollution during the production process.
- Improving Resource Efficiency: Optimize production processes to reduce raw material waste and energy consumption.
- Reducing Extraction and Strengthening Source Management: Advantech's commitment to promoting sustainable raw materials contributes to reducing raw material extraction at the source, thereby minimizing environmental impacts and enhancing source management. In alignment with the Responsible Minerals Initiative (RMI)'s ASM Cobalt Standard, Advantech has established relevant policies, goals, and programs, which include: developing management systems for supplier due diligence, identifying and assessing supply chain risks, establishing risk classifications and mitigation plans. The focus is on managing risks at the extraction and raw material production stages to further reduce negative environmental impacts.

### Reducing Negative Social Impacts

- Respect for Local Communities and Cultures: Engage and communicate with local communities, respecting their cultures and values to ensure that production activities do not adversely impact the local society.
- Safeguarding Labor Rights in Partnership with the Supply Chain: Conduct regular



reviews of ESG performance across the supply chain. In the areas of labor and human rights, Advantech requires suppliers to comply with labor laws to meet occupational health and safety management standards, human rights protections, and fair labor practices. Review suppliers' public litigation records or media reports to identify potential risks of adverse social impacts, including but not limited to human rights violations and labor rights issues.

- Ensure that workers in the production process receive fair and reasonable wages, a safe working environment, and dignified treatment, while strictly prohibiting child labor and forced labor.
- Focusing on Human Rights Risk Management in the Extraction and Raw Material Production Stages: To avoid the use of minerals sourced from Conflict-Affected and High-Risk Areas (CAHRAs), Advantech strictly adheres to the Responsible Business Alliance (RBA) Code of Conduct and implements a no-conflict-minerals policy. Advantech commits not to procure metals from CAHRAs and requires all suppliers to comply with this policy, ensuring that the supply chain respects human rights and does not contribute to conflict activities.

# Target Setting for the Use of Recycled Materials (Plastics/Metals) in Green-Designed Products

	Target Setting for the Use of Recycled Materials (Plastics/Metals)					
V	in Green-Designed Products					
Year	Plastics (Proportion of	Recycled	Metals (Proportion of Recycled Material Used)			
	Material Used)		Steel		Aluminum	
2025	External	>30%	External	>10%		
2025	mechanical parts	>30%	mechanical parts		_	
2026	Mechanical parts	>30%	Mechanical parts	>10%	Mechanical parts	>50%
2030	Mechanical parts	>50%	Mechanical parts	>20%	Mechanical parts	>80%

Note: The aforementioned external mechanical parts or mechanical components refer to Advantech-designed parts and comply with Advantech's Green-Designed Product Gold Guidelines.

Achieving the use of sustainable raw materials not only reduces negative environmental and social impacts but also advances the progress of sustainable development.



content targets have been set for different types of plastic packaging. By 2030, all plastic packaging must contain at least 35% recycled materials, with the target increasing to 65% by 2040. Advantech has proactively set usage targets for recycled materials (both cartons and plastics), establishing different required proportions of recycled content to meet and exceed regulatory requirements.

	Target Setting for the Use of Recycled Materials in Packaging			
Year	(Cartons/Plastics)			
Teal	Cartons and Paperboard	Plastic Packaging		
	(Proportion of Recycled Content)	(Proportion of Recycled Content)		
2024	90%-100%	/		
2025		>35%		
2030		>50%		
2035		>65%		

# Progress on Sustainable Raw Material Procurement Targets

To fulfill its commitment to sustainable raw materials and green products, Advantech has established a sustainable raw material and supplier management framework through the joint efforts of the Procurement Team, Component Engineering Team, and Quality Assurance Team. Targets have been set, and progress is reported as follows:

Timeline	Key Progress
2024 Q4	Recycled Material Part Number Coding Management
	In the past, there was no classification management for general materials and recycled
	materials. Starting last year, Advantech has established a dedicated part number
	classification rule for recycled materials, separating sustainable material parts from
	conventional parts. This will further support the selection, planning, and design of low-
	carbon products.



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#### 2025 Q1 Recycled Material Supplier Evaluation – Traceability and Certification

- ✓ Identify and verify currently valid and compliant recycled material certifications.
- ✓ Suppliers must provide recycled material certificates such as ISO 14021, ULE2809-2, SCS Global Services, GRS, GRS TC (Transaction Certificate), or certificates issued by third-party verification bodies in accordance with the above standards. Where necessary, Advantech will require suppliers to provide the following supporting documents to verify the source of recycled materials:
  - (1) For packaging materials with GRS-related certification, suppliers must also provide Advantech's Recycled Material Content Self-Declaration Form.
  - (2) Internal records (e.g., BOM, production records), contracts, invoices, technical data sheets, or documentation tracing the source of recycled materials.
- Completed evaluation of recycled material certification standards to ensure the environmental integrity and legal compliance of material sources.
- ✓ Completed supply chain evaluation for recycled metals and plastics to identify the number of suppliers capable of providing recycled material certifications.

PCR Certificate	Certificate Validity (Years)	Steel	Aluminum
SCS	1	X	V
UL2809	1	V	V
GRS	1	X	V
ISO14021	3	V	V
ISO14025	3	X	V

# 2025 Q2 Recycled Material Certification Information Management – Facilitating Effective Tracking and Maintaining Sustainable Raw Material Supplier Qualifications and Target Setting

- ✓ Completed the implementation of recycled material certification information management within the SRM (Supplier Relationship Management) quality system.
- ✓ Target: At least 30% of PVL (Preferred Vendor List) suppliers in the recycled material supply chain upload their recycled material certification documents to the SRM system.
- Target: Maintain at least 70% of part number weight data for metal and plastic PVL suppliers in the PLM (Product Lifecycle Management) system.

2025 Q4 Recycled Material Certification Information Management – Facilitating Effective

Tracking and Maintaining Sustainable Raw Material Supplier Qualifications and Target



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#### Setting

- ✓ Target: At least 80% of PVL (Preferred Vendor List) suppliers in the recycled material supply chain upload their recycled material certification documents to the SRM (Supplier Relationship Management) system.
- ✓ Target: Maintain at least 90% completion of part number weight data for metal and plastic PVL suppliers in the PLM (Product Lifecycle Management) system.

# Appendix Information: Raw Material Disclosure

Plastic materials in products: (thermoplastic materials only, no packaging)	Amount used: Indicate the amount used in the last fiscal year.	Share of materials used that are recycled: Indicate the % of the total amount of materials used that comes from recycled sources.
Plastic materials in products	121.510 (metric tonnes)	0 % of materials that are recycled
Metal materials	Amount: Indicate the amount used in the last fiscal year for each material disclosed	Share of material used that is recycled: Indicate the % of the total of the material used that comes from recycled sources
Aluminium	170.244 (metric tonnes)	0 % of material that is recycled
Iron/steel	599.095 (metric tonnes)	0% of material that is recycled

Note 1: Advantech does not use metals such as cobalt, copper, nickel, lithium, or titanium; therefore, no related information is available for disclosure.

Note 2: The progress and target setting for Advantech's sustainable raw material procurement are described on pages 7 and 8 of this document. Achievements to date include: (1) part number coding management for recycled materials, (2) recycled material supply chain evaluation, traceability, and certification, and (3) recycled material certification information management and target setting. Future actions will follow the established plan to further enhance Advantech's sustainability performance. Note 3: Data on aluminum and steel/iron usage includes only mechanical components.