

Impact of ESG and ISO 14001:2026

Revision on the Hardware, Tools, and Components Industry

ESG及ISO 14001:2026標準改版對五金工具零組件產業影響

Introduction

ISO 14001 is the world's most common Environmental Management System (EMS) standard. The International Organization for Standardization (ISO) officially published the latest Environmental Management System standard, ISO 14001:2026, in April 2026. ISO 14001:2026 provides a three-year transition period for the previous standard (ISO 14001:2015). Certificates issued under ISO 14001:2015 must be converted to the new version and reissued before the end of April 2029; otherwise, they will become invalid. ISO 14001:2026 does not make structural revisions and continues to maintain the same High-Level Structure (HLS) as other international management system standards such as ISO 9001. It takes risk management as its core concept (refer to ISO 31000 Risk Management – Principles and Guidelines) and operates through the PDCA (Plan-Do-Check-Act) continual improvement cycle. It also emphasizes the participation of all employees to achieve the target performance of core management.

In recent years, ESG (Environmental, Social, and Governance) has become a core indicator for measuring the competitiveness and sustainable development of enterprises worldwide. Many international corporations, investment institutions, and even governments require companies to publicly disclose specific ESG reports to ensure that they have taken substantial actions in environmental protection, social responsibility, and corporate governance.

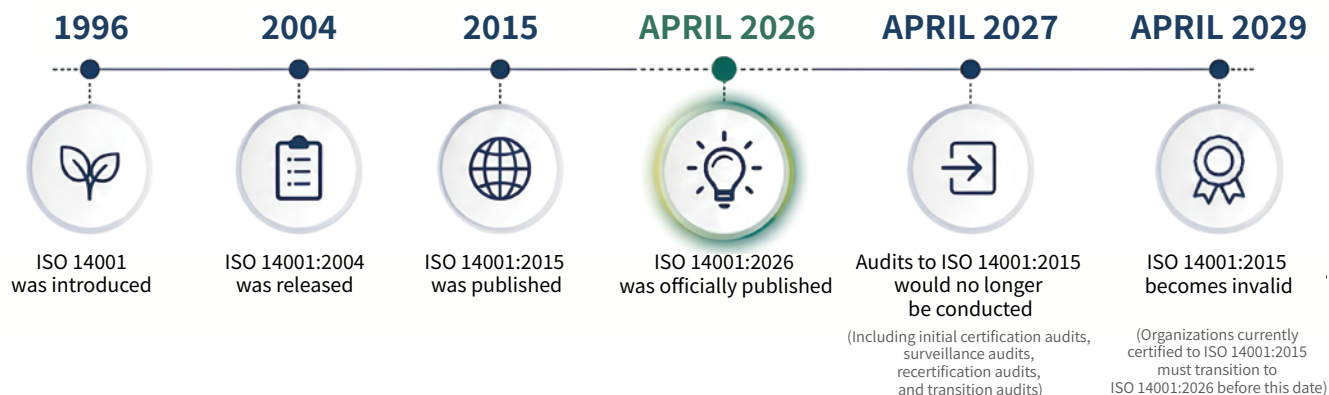
ISO 14001 requires organizations to continuously monitor and improve their environmental performance. Environmental performance is the foundation of the environmental data required by ESG. The data generated by ISO 14001, together with its systematic legal compliance identification and evaluation mechanism, not only helps ensure compliance with environmental regulations but can also be directly used as important supporting evidence in ESG reports for climate change, waste management, and energy and resource consumption.

ISO 14001:2026 From Environmental Management to a Sustainable Future

Reviewing the historical development of the ISO 14001 environmental management standard helps illustrate the future trend of global sustainable development requirements. (Figure 1)

▼ Figure 1. From Environmental Management to a Sustainable Future

ISO 14001 Development and Revision Timeline



The main changes in ISO 14001:2026 include strengthening the consideration of climate change and biodiversity in the analysis of an organization's internal and external context, introducing a new clause on planning for changes, expanding the scope of value chain control, and further emphasizing a life cycle perspective.

A clause-by-clause comparison between ISO 14001:2026 and ISO 14001:2015 is summarized below.

Clause	Main Changes in the 2026 Edition	Significance and Impact
4.1	More specific requirements. It clearly requires that identified internal and external issues shall include environmental conditions that are affected by the organization or capable of affecting the organization, such as the type and degree of pollution, availability of natural resources, climate change, biodiversity, and ecosystem health.	Strengthened environmental management. Focuses on the substantive issues related to the context of the organization. Organizations are required to incorporate macro-environmental issues such as climate change and biodiversity, rather than focusing only on direct regulatory compliance.
4.2	Minor wording revision. Organizations are required to determine the relevant needs and expectations (requirements) of interested parties and identify which of them will be addressed through the environmental management system.	Establishes a clearer link between interested party requirements and compliance obligations, emphasizing that the environmental management system is a tool for responding to stakeholder expectations.
4.3	When considering control and influence, the standard explicitly requires consideration of the organization's influence over the life cycle of activities, products, and services.	Life cycle perspective. Life cycle considerations must be included when defining the scope of the environmental management system.
6.1	The original clause is reorganized into: • 6.1.1 General • 6.1.2 Environmental aspects (explicitly requiring identification of environmental aspects under both normal and abnormal conditions) • 6.1.3 Compliance obligations • 6.1.4 Risks and opportunities (requirements determined separately) • 6.1.5 Planning actions (formerly 6.1.4)	Aligned with the structure of ISO 9001. Risks and opportunities are addressed separately, maintaining consistency with other management system standards. The revision also improves practicality by requiring the identification of abnormal operating conditions, enabling more comprehensive identification of environmental aspects (e.g., emissions during equipment start-up, shutdown, or maintenance).
6.3	New clause. When an organization determines changes affecting the environmental management system, the changes shall be implemented in a planned manner and managed to ensure intended results are achieved (Annex A.6.3).	Strengthened change management. Introduces a systematic approach to managing changes, such as process modifications, equipment upgrades, and organizational restructuring, to prevent environmental performance from deteriorating due to uncontrolled changes.
8.1	Terminology updated. "Outsourced processes" is replaced with "externally provided processes, products and services." Requirements are aligned with a life cycle perspective.	Expanded supply chain scope. The focus extends beyond outsourced processes to include externally provided products and services, supporting life cycle management.
9.2.2	More explicit requirements. Each internal audit must define the audit objectives, audit criteria, and audit scope.	Improved internal audit management. Internal audit planning becomes more systematic and consistent with the terminology of ISO 19011, enhancing audit effectiveness.
9.3	The original clause is reorganized into: • 9.3.1 General • 9.3.2 Management review inputs • 9.3.3 Management review results	Clearer management review requirements. Specifies what shall be included in management review inputs and outputs, ensuring that all key issues are reviewed.
10	The original clause is reorganized into: • 10.1 Continual Improvement (combining former Clauses 10.1 and 10.3) • 10.2 Nonconformity and Corrective Action	Simplified structure with emphasis on continual improvement. The ultimate objective of environmental management is not only to address nonconformities through corrective actions but also to achieve continual improvement.



Clause	Main Changes in the 2026 Edition	Significance and Impact
Annex A	Provides explanatory guidance.	Offers detailed explanations of the intent of each clause, key concepts, and implementation methods, particularly regarding the life cycle perspective, risks and opportunities, change management, and supply chain (outsourcing) control.

Based on the revisions introduced in ISO 14001:2026 and the trend of shifting from environmental management toward a sustainable future, the standard focuses on the following three key areas:

01 Organizational context, environmental considerations, and planning (including climate change concepts and a greater focus on carbon emissions and ecosystems).

02 Process control and change management.

03 Supply chain and life cycle management.



These three key areas are all aligned with the objectives of ESG and sustainable development.

The Impact of ESG and the ISO 14001:2026 Revision on the Hardware, Tools, and Components Industry

In response to ESG requirements, the revision of ISO 14001:2026, and the trend toward a sustainable future, the hardware, tools, and components industry should review the three key areas of ISO 14001:2026 and confirm the application of the following products, services, and related activities.

1. Organizational Context, Environmental Considerations, and Planning

Has the organization identified background issues related to greenhouse gas emissions, energy, ecosystems, climate, and climate change? Does the identification of environmental aspects include abnormal operating conditions? Are opportunities limited only to cost reduction, or have opportunities for low-carbon transformation also been identified? Have the risks and opportunities related to climate change been addressed? The following evidence should be implemented to demonstrate compliance with ISO 14001:2026 and ESG requirements:

a. Internal and external issues

Records should include information related to carbon emission policies, energy, green supply chain requirements, and other issues concerning fastener products.

b. Records should be maintained for greenhouse gas emission inventories, carbon neutrality initiatives (such as self-generated solar power or other renewable energy), or the environmental performance of different types of hardware, tools, and components during production and supply.

Greenhouse gas inventories may be implemented in accordance with ISO 14064-1. Carbon neutrality measures may refer to ISO 14064-2 for establishing emission reduction and carbon neutrality objectives. For manufacturers of construction-related hardware, tools, and components, the environmental performance of products may be determined with reference to REGULATION (EU) 2024/3110 (Construction Products Regulation) and ESG requirements (see Fastener World Magazine No. 217 and No. 218). For example, products may comply with the life cycle scope defined in EN 15804 and obtain an Environmental Product Declaration (EPD) in accordance with European regulations.

c. Environmental aspects should include records of risks and opportunities arising from abnormal operating conditions or natural disasters, such as extreme heat, extreme cold, drought, heavy rainfall, snowstorms, and other climate change-related events.

2. Process Control, Change Management, Supply Chain, and Life Cycle

Processes, products, and services—including externally provided processes, products, and services—should be managed in a manner that is consistent with the expected life cycle perspective. Therefore, life cycle requirements supporting product supply may be planned and established based on relevant standards. For example, organizations may refer to REGULATION (EU) 2024/3110 (Construction Products Regulation) and the three life cycle scopes supported by EN 15804 (see Fastener World Magazine No. 218). To meet ESG requirements and environmental declarations for product sustainability, the following life cycle scopes may be considered:

a. Cradle-to-Gate

Covers the product stage from raw material extraction to the factory gate of the fastener product.

b. Cradle-to-Grave

Covers the entire life cycle, including raw materials, manufacturing, the factory gate, customer use, maintenance, and end-of-life disposal of the fastener product.

c. Cradle-to-Gate with Options

Covers the product stage and optionally includes additional stages, such as product use, maintenance, or end-of-life processes.

The change management mechanism should cover product design, processes, products, services, and externally provided processes. When engineering changes, material substitutions, or supply chain (outsourcing) changes occur, the responsible ESG or environmental management department should determine the associated environmental risks and opportunities.

Supply chain management has become an indispensable part of environmental management and the life cycle perspective under ESG and sustainable development requirements. Carbon management throughout the industry background and the upstream and downstream hardware, tools, and components supply chain has become a requirement for a sustainable future. For example, under CBAM, manufacturers of hardware, tools, and components whose EU import tariff codes fall within the scope of CBAM must submit carbon emission data quarterly to EU importers. If accurate carbon emission data cannot be provided, manufacturers may face the risk of being excluded from green supply chains.

The global hardware, tools, and components industry is no longer competing only in terms of price and quality, but is also entering a new stage of qualification competition driven by ESG and

sustainable development requirements. In addition to environmental management covering raw materials, manufacturing, and the supply chain, carbon emissions are becoming an important qualification criterion. Green manufacturing practices—such as improving energy efficiency, promoting recycling, and reducing waste—have become important environmental management risks and opportunities under ESG. For manufacturers of hardware, tools, and components, establishing an ESG-oriented sustainable supply chain, including outsourced electroplating and surface treatment technologies that utilize environmentally friendly and non-toxic substances for corrosion protection, will also become an important element of publicly disclosed ESG reports and environmental management practices. ■

Reference

1. Wei-Ming Wang, Fastener World Magazine No. 217, Fastener World Inc., p.316-320
2. Wei-Ming Wang, Fastener World Magazine No. 218, Fastener World Inc., p.266-268
3. ISO 14001:2026 Environmental management systems — Requirements with guidance for use

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