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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Environmental management systems - Guidelines for
incorporating material circulation in design and development**

环境管理体系 在设计和开发中引入材料循环的指南

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is equivalent to ISO 14009:2020, "Guidance on the introduction of material recycling in the design and development of environmental management systems".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Environmental Management (SAC/TC207).

0.1 Background

One of the major challenges facing everyone in achieving sustainable development is how to use resources effectively without depleting them.

These resources should be reused, taking into account both value and usability. At the international level, the International Resources Committee of the United Nations Environment Programme (UNEP) has warned...

The report states that, at the current rate of production and consumption, the world will consume 140 billion tons of natural resources by 2050, which is equivalent to the amount consumed in 2005.

Twice. This approach to utilizing natural resources without considering material recycling

has led to unstable resource supply and severe adverse environmental impacts.

In 2015, the United Nations adopted 17 Sustainable Development Goals, setting milestones for each goal to be achieved within 15 years.

Sustainable Development Goal 9 ("Building resilient infrastructure, promoting inclusive and sustainable industrialization and advancing innovation"),...

Development Goal 12 ("Ensuring sustainable consumption and production patterns") and Sustainable Development Goal 13 ("Taking urgent action to address climate change and") their impacts are all directly related to natural resource management.

The European Union was among the first to emphasize the transition from a linear economy to a circular economy in order to achieve sustainable development. The concept of a circular economy encompasses a wide range of aspects.

The topic ranges from the complete product lifecycle to business models. The general concept of a circular economy refers to the application of technologies that promote recycling and reuse.

The design utilizes and limits (or eliminates) waste, creating a closed loop across different lifecycles to achieve greater efficiency in raw materials and products.

One approach to supporting the transition to a circular economy is to implement designs that promote the recycling of materials in products and their components (see Appendix A).

Since products are primarily composed of raw materials, the recycling of these materials is crucial for the sustainable use of resources. It is widely recognized that...

Therefore, the formulation of material recycling strategies/plans for products and their components should precede product design and development.

Material recycling can be understood as a method introduced into design and development that continuously reprocesses products, components, or raw materials into the same or similar forms.

Similar products are designed to achieve material efficiency and organizational (ultimately) environmental goals. This aims to benefit organizations and ensure they achieve their material efficiency objectives.

Therefore, improving the materials cycle should be integrated into the organization's operational activities. The materials cycle has potential benefits for all organizational functions.

Influence.

This document provides guidance on material recycling strategies to improve material efficiency through improved design, increased organization of maintenance, upgrades, and reuse.

Opportunities for remanufacturing and recycling can minimize material usage and extend product lifespan.

The process of improving material recycling occurs during the design and development of an organization, and it also provides methods for implementing and managing material recycling.

However, when implementing material recycling under an Environmental Management System (EMS), the person in charge of the EMS should have a full understanding of this process, and how...

How to manage and control it. This will not compromise the integrity of the environmental management system, but will also improve the material efficiency of the product and achieve its goals.

His environmental goals.

Incorporating materials efficiency into an environmental management system requires the following knowledge.

- a) Evaluate the material cycle of products within the organization;
- b) Determine appropriate material recycling strategies, improve material recycling for products and their components, and support the achievement of organizational material efficiency.

Target;

- c) The design and development process, understanding the material recycling optimization process and how to manage it within the environmental management system.

0.2 Relationship with other standards

ISO 14001 is a core standard that provides a framework for organizations to establish an environmental management system. Users of ISO 14001 need to understand...

There are four key elements, one of which relates to "policy and organizational elements," such as elements related to sustainable resource utilization. Further explanation can be found in [link to relevant documentation].

ISO 14006 relates to eco-design and this document relates to material recycling.

ISO 14006 provides organizations with a systematic and structured approach to integrating and implementing eco-design into their environmental management systems (e.g., ISO 14001 provides guidance.

On the other hand, IEC 62430 elucidates the relevant principles and requirements, providing guidance for organizations that intend to incorporate environmental factors into their design and development.