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Life cycle inventory calculation methodology for steel products

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In the event of any doubts arising as to the contents,
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Foreword

This Japanese Industrial Standard has been established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by The Japan Iron and Steel Federation (JISF) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

Life cycle inventory calculation methodology for steel products

Introduction

This Japanese Industrial Standard has been prepared based on ISO 20915 : 2018, Edition 1, with some modifications of the technical contents, taking account of an application of the specifications as JIS.

The dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

The life cycle inventory (LCI) of steel products is an important component in the support of life cycle assessments (LCA) for a wide range of products and applications that contain steel or where steel is used to support the manufacture, production or delivery of products. This Standard describes the methodology for the calculation of LCI for steel products. This calculation method can be applied to a wide range of steel products, and represents the main process routes for global steel production. This includes the extraction of raw materials from the earth through to the production of steel products at the factory gate, as well as provision for scrap recycling of steel products and the treatment of steel scrap. The methodology conforms to the principles and framework specified in JIS Q 14040 : 2010 and the requirements and guidelines specified in JIS Q 14044 : 2010, and demonstrates how these principles can be applied to steel product manufacture and steel recycling.

The life cycle of steel products consists of the following stages (see Figure 1) :

a) sourcing of natural resources (which includes mining, transportation and intermediate processing of raw materials) and external scrap (recovered from both the manufacturing process and the end of life of final products);

b) production of steel products at the steelworks;

c) manufacturing of final products by downstream users, for example, by customers of the steel products, such as automotive, construction, engineering and electricity industries;

d) use of final products, where the environmental performance [1)] of the final product depends on the steel products being used; for example, the fuel (or energy) consumption of an automobile depends partly upon the weight of its steel components;

Note [1)] See 3.16 of JIS Q 14050 [6] for environmental performance.

e) recovery of material from the end of life of final products, external scrap from manufacturing process or end of life of final products;

f) recycling of external scrap to substitute the use of natural resources.