

**Issuance of Guideline for Calculating the Reduction in CO₂ Emissions
Towards an international standard for applying the c-LCA methodology to calculate
the reduction in CO₂ emissions**

The Japan Chemical Industry Association (JCIA, Chairman: Kenji Fujiyoshi) has formulated guideline for a methodology to evaluate the reduction in CO₂ emissions of green products based on environmental considerations. The Association is pleased to announce the release of the Guideline today.

This guideline is based on the investigations of an LCA Working Group spanning more than six months. The working group comprised 17 companies and three associations, with manufacturers producing innovative materials as leaders in the JCIA Technical Affairs Committee. The members of the working group included Sumitomo Chemical, Asahi Kasei, Mitsubishi Chemical Holdings, Mitsui Chemicals, FujiFilm and Toray Industries. In preparing this guideline, JCIA is indebted to Mizuho Information & Research Institute, Inc. and ETISA for the guidance they provided, as well to Prof. Masahiko Hirao of the Department of Chemical System Engineering, the University of Tokyo for his advice.

This guideline applies the c-LCA (carbon life cycle analysis) methodology to evaluate the CO₂ emissions to the different stages of product manufacture as well as throughout the products' entire life cycle, from the collection of raw materials, manufacturing, logistics, and use to disposal. The guideline focuses on the practical points to be noted when using the c-LCA methodology to compare two types of products, namely, the new product (referred to as the product to be evaluated) and the old product it replaces (known as the product for comparison). The guideline also focuses on points to be noted when evaluating the difference in the total emissions as the reduction in CO₂ emissions. These points include the procedure for calculating the reduction in CO₂ emissions, the procedure for selecting products to be compared and evaluated, and procedure for ensuring data transparency.

In the future, JCIA will cooperate with other business fields and actively encourage the sharing and use of the guideline throughout the entire industry at home. JCIA will establish a standard that is applicable to the chemical industry through the International Council of Chemical Associations (ICCA).

Purpose of preparing the guideline

When calculating the reduction in CO₂ emissions of green products, the c-LCA methodology is used to evaluate the entire life cycle of the product. At present, however, there is no unified standard and the person making the calculations has discretion in the assumptions made. The result has been disparate results due to differences in methodologies with some calculated values falling outside those that are generally acceptable.

This guideline presents a consistent standard for calculating the reduction in CO₂ emissions, with the aim of preventing disparate results due to differences in methodologies, thereby enhancing c-LCA transparency and reliability. The guideline identifies and streamlines the practical points to be noted, and is suitable for use in corporate business strategies and Japan's green innovation policies.

Outline of the guideline

- ◆ Basic approaches to thinking about evaluation using the c-LCA (concepts inherent in the c-LCA methodology and the reduction in CO₂ emissions)
- ◆ Method of calculating the reduction in CO₂ emissions (the basic and simplified calculation methods)
- ◆ Setting various conditions when calculating the reduction in CO₂ emissions (requirements for selecting the products to be compared, specifying the range of products for reducing emissions, etc.)
- ◆ Transparency, reliability and validity of data
- ◆ The concept of the contribution ratio, and others



Purpose of calculating the reduction in CO₂ emissions

- ◆ To understand quantitatively the degree to which chemical products and technologies contribute to the reduction in CO₂ emissions, and thereby highlight the social contribution made by the chemical industry.
- ◆ To provide material for examining policies related to CO₂ mitigation and thereby promote initiatives that would lead to further reductions in CO₂ emissions by means of chemical products and technologies (provision of support for technical development, incentives for propagation, etc.)
- ◆ To promote use of the calculation as a management index that can be used in conjunction with business plans, targets of technical development, etc. in individual companies.

Future development

1. Formulation of an international standard

JCIA plans to promote global use of the methodology for calculating the reduction in CO₂ emissions throughout the entire life cycle of a product and take the initiative in formulating an international standard. Japan leads the world in the field of advanced materials and green products and is well suited for assuming a leading role in this project. The international standard will serve as a compass for future innovations.

2. Cooperation in industries

c-LCA has elicited increasing interest in other industries, too. JCIA actively encourages the sharing and use of the guideline throughout the entire industrial community at home in cooperation with other business fields.

3. Review of the guideline

JCIA will continually revise the guideline to ensure their efficacy, taking into consideration the formulation of the international standard, cooperation with other industries, and other factors.

Members of the LCA Working Group

Member companies and associations of LCA working group, JCIA Technical Affairs Committee

Asahi Glass Co. Ltd., Asahi Kasei Corporation, FujiFilm Corporation, Kaneka Corporation, Kao Corporation, Mitsubishi Chemical Holdings Corporation, Mitsui Chemicals, Inc., Nippon Paint Co. Ltd., Nippon Shokubai Co. Ltd., Sekisui Chemical Co. Ltd., Showa Denko K.K., Sumitomo Chemical Company, Limited, Teijin Ltd., Tokuyama Corporation, Tonen Chemical Corporation, Toray Industries, Inc., Ube Industries, Ltd., The Japan Plastics Industry Federation, Plastic Waste Management Institute, and Vinyl Environmental Council.

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