Curbing Global Warming from Products

Promotion of Environmentally Friendly Design by Assessing Environmental Impact across the Entire Product Life Cycle

▶Graph 1 ▶Fig 1

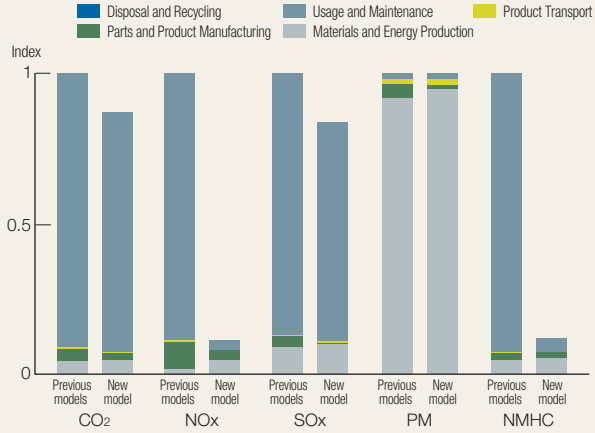
Life Cycle Assessment (LCA) of Major Products

A Life Cycle Assessment (LCA) is a method of evaluating the environmental impact of a product across its entire life cycle, from procurement of raw materials and parts, to production, throughout its usage stage, and finally on to its disposal.

Toyota Industries has been implementing trials of LCA on some of its products since the late 1990s. Based on those trials, it compiled the aims and methods of LCA into the LCA Guidelines in May 2004, and conducted LCA on its major products. This in turn resulted in the establishment of in-house regulations that stipulate the control items and targets regarding environmental impact at each stage of a product's life cycle that must be considered during the development stage. In addition to product LCA, Toyota Industries has also established a system for calculating LCA recycling rates.

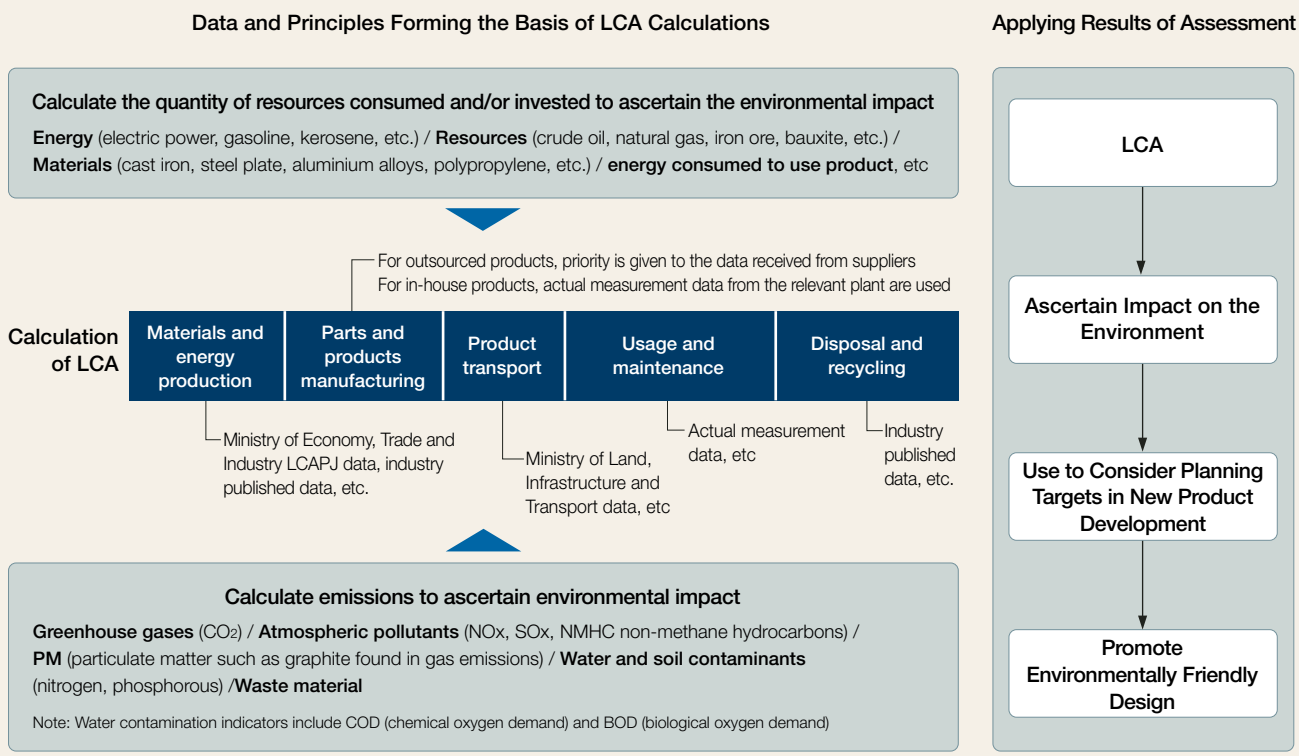
The results of the LCA conducted on the new model lift truck, GENEO (8FG/D outside Japan), in fiscal year 2007 are as shown in Graph 1.

▶Graph 1 Results of the LCA Assessment of the New GENEO



Toyota Industries will continue to conduct LCA on its major products to obtain information about their impact on the environment. This will enable the company to set targets for new products and to promote environmentally friendly design.

▶Fig 1 Flow of the Life Cycle Assessment



TOPICS

Introduction of In-House Certification Program for Environmentally Friendly Products

In December 2006, Toyota Industries launched its own certification program for environmentally friendly products. The first product to obtain this certification was the new internal combustion lift truck, "GENEO" (8FG/D outside Japan), which was released in September 2006.

The aims of the certification program are the pursuit of environmental considerations during product development and the promotion of Toyota Industries' environmentally friendly products. It is based on the International Standards Organization (ISO) Type II environmental labelling standard (ISO14021)*1. Environmentally friendly products are certified if they meet Toyota Industries' own standards for consideration of the three main themes of the Fourth Environmental Action Plan during their product development. The Fourth Environmental Action Plan started in fiscal year 2007 and the three main themes are curbing global warming, using resources more efficiently, and reducing environmental risk factors (substance of concern risk management).

Assessment under the certification program is conducted according to a two-pronged approach. The first is a "Factor Assessment", which assesses quantitatively how much the newly developed product's eco-efficiency has improved compared to that of the base product (existing Toyota Industries product). The second is a "Development Processes Assessment", which includes assessment of factors such as fuel efficiency improvements, smaller size, lighter weight, and the like. Products that satisfy the criteria are then checked by an independent verifying agency and adjudicated within the company before being granted certification. Products that are certified carry a Toyota Industries environmental label.

Under the Type II environmental labelling standard, ISO requires only self-declaration by the enterprise itself (no third-party certification required). Toyota Industries, however, in order to create an even more reliable program, has decided to have its self-assessment confirmed by the international inspection and certification organization, Bureau Veritas Japan Co., Ltd.

*1 Environmental labelling: Labelling that conveys to consumers the environmental aspects of a product or service through text written on the product, advertisements, symbol marks, and other means. ISO has established three categories of environmental labels – Type I labels (e.g. Japan's Eco Mark), which indicate certification by an independent verifying agency, Type II labels, which indicate self-declaration by the enterprise that certain standards have been met, and Type III labels (e.g., Japan's EcoLeaf Program), which provide environmental impact data for the product.

On the new GENEO lift truck the environmental label is attached to the front of the vehicle's body, between the frame and the mast.

Environmental Label

Certified products carry an "environmental label" containing the mark shown below on the product itself, its packaging, catalogs, and other materials.
The mark's circle represents the Earth, wrapped in a green leaf.

Features of the new GENEO's environmental performance

- Superior fuel efficiency due to the adoption of an electronically controlled throttle (electronically controlled 4Y gasoline engine)
- High power and cleaner emissions have been achieved due to the electronically controlled engine and three-way catalytic muffler (standard equipment) which meet 2007 emissions standards*2
- High-power, and cleaner diesel engine that meets emissions standards*3
- Almost 100% filtering of black smoke with the DPF-II (option)
- Major reductions in the use of substances of concern

*2 2007 Emissions Standards for Special/Non-Road Motor Vehicles
*3 2003 Emissions Standards for Special/Non-Road Motor Vehicles

Independent Verifying Agency's Certification of Toyota Industries' Certification Program

For the benefit of business and people

タイプ II 環境ラベル表示認定要領（自己宣言による環境主張）
第三者レビュー報告

2006 年 12 月 08 日

株式会社豊田自動織機 御中

ビューローベリタス
事業開発部長
嶋山 一茂

ビューローベリタス（以下 BV という）は、株式会社豊田自動織機（以下豊田自動織機という）の責任において、14020 の一般原則 1,3,4,5,9 に基づき作成された、豊田自動織機技術標準「環境配慮型製品認定要領（STR A8001）」（以下 認定要領という）のレビューを実施した。BV の責任は、認定要領が ISO14020 の一般原則 1,3,4,5,9 及び ISO14021 の 5.1～5.7, 6.1～6.5 に基づいているかどうかを独立の立場からレビューし、その意見を報告することであり、保障を目的とするものではない。

レビューの方法
現時点においては環境ラベル表示認定要領の審査に関する一般に認められた国際基準は確立されていない。このため認定要領のレビューにあたっては、ISO14020 及び ISO14021 を参考とし、これまで行われている様々な手続きに対する評価手法や慣行を参考にした。

レビューの実施要領
BV は、豊田自動織機との合意に基づき、以下の手順でレビューを実施した。
1. 環境配慮型製品認定要領である豊田自動織機技術標準（STR A8001）のデスクレビューを実施し、ISO14020 の一般原則 1,3,4,5,9 及び 14021 の 5.1～5.7, 6.1～6.5 に基づいてできているかどうかを評価した。
2. 2006 年 11 月 23 日に豊田自動織機本社（愛知県刈谷市）において認定委員会に対しインタビューを実施し、豊田自動織機技術標準（STR A8001）通りに実行されているかを確認した。

レビューの結果
BV のレビューの結果は以下の通りである。
1. 豊田自動織機技術標準（STR A8001）に示された認定要領は ISO14020 一般原則 1,3,4,5,9 及び 14021 の 5.1～5.7, 6.1～6.5 の各々の項目が適切に反映されている。
2. 認定委員会事務局、及び認定委員会は、同技術標準に沿って適切な評価活動を行っている。

以上