



Standard Practice for Evaluating and Reporting Environmental Performance of Biobased Products¹

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INTRODUCTION

Biobased materials and products offer potential environmental benefits, energy savings, and reduced consumption of nonrenewable resources. However, there is a need for standard approaches and procedures for comparing the overall environmental benefits and burdens of biobased products and non-biobased products that are used in similar applications. Such comparisons are needed, among other uses, by industry and governmental institutions in selecting materials and products in making purchasing decisions.

An approach for determining the biobased content, resource consumption and environmental profile of biobased products has recently been published as an ASTM guide (D 6852), which provides a framework for assessing the environmental profile of a biobased product.

Guide D 6852 proposed the use of life cycle assessment (LCA) as the tool for assessing the environmental performance of biobased products and deferred to future ASTM standards for additional details.

The subject of this practice is to provide additional guidance for evaluating the environmental profile or performance of biobased products. For consistency in decision-making, the LCA approach shall be further defined for biobased products, although the overall approach is applicable for non-biobased products as well.

This practice is in accord with concepts and terminology used in ISO Standards on LCA (ISO 14040–14043) and is designed as a guide through the steps of LCA assessment. References are provided to the more detailed ISO Standards pertinent to each step.

This practice is aimed at technical professionals not directly involved in LCA evaluations who desire to become familiar with the methodology of LCA as it relates to biobased products.

1. Scope

1.1 Environmental performance shall be measured using the life-cycle assessment (LCA) approach. LCA is a “cradle-to-grave” approach that evaluates all stages in the life of a product, including raw material acquisition, product manufacture, transportation, use and ultimately, recycling (that is, “cradle to cradle” and waste management).

1.2 LCAs for biobased products shall be conducted and communicated in a similar manner, including consistent boundary conditions, functional units, environmental indicators, and reporting formats.

1.3 This practice is limited to environmental performance metrics and excludes other metrics such as those related to economics and social equity.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D 6852 Guide for Determination of Biobased Content, Resources Consumption, and Environmental Profile of Materials and Products

D 6866 Test Methods to Determine the Biobased Content of Materials Using Radiocarbon and Isotope Ratio Mass Spectrometry

¹ This practice is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.96 on Environmentally Degradable Plastics and Biobased Products.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.