

SINGAPORE STANDARD

**Environmental management – Water footprint –
Principles, requirements and guidelines**



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Ernst & Young LLP
National Climate Change Secretariat
National Environment Agency
Ramboll Environ
Singapore Institute of Manufacturing Technology
TUV SUD PSB Pte Ltd

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National Foreword

This Singapore Standard was prepared by the Working Group on Greenhouse Gas Management and Product Lifecycle Assessment appointed by the Technical Committee on Environmental Management under the direction of the Environment and Resources Standards Committee.

This standard is identical with ISO 14046: 2014 published by the International Organization for Standardization.

Where appropriate, the words “International Standard” shall be read as “Singapore Standard”. The references to International Standards shall be replaced by the following Singapore Standards:

International Standard	Corresponding Singapore Standard
ISO 14025	SS ISO 14025
ISO 14040	SS ISO 14040
ISO/TR 14047	TR ISO/TR 14047
ISO/TR 14049	TR ISO/TR 14049
ISO/TS 14071	TR ISO/TS 14071

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

- 1. Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 5, *Life cycle assessment*.

Introduction

Water is an essential natural resource.

The issue of water and its management has become increasingly central to the global debate on sustainable development. This interest has been driven by growing water demand, increasing water scarcity in many areas and/or degradation of water quality. This drives the need for a better understanding of water related impacts as a basis for improved water management at local, regional, national and global levels.

It is therefore desirable to have appropriate assessment techniques that can be used in an internationally consistent manner.

One of the techniques being developed for this purpose is the water footprint assessment.

There is a growing demand for assessing and reporting water footprints. Various methodologies exist to do so and currently these methodologies emphasise different aspects related to water. There is therefore a need to ensure consistency in assessing and reporting water footprints.

This International Standard is expected to benefit organizations, governments and other interested parties worldwide by providing transparency, consistency, reproducibility and credibility for assessing and reporting the water footprint of products, processes or organizations.

A water footprint assessment conducted according to this International Standard:

- is based on a life cycle assessment (according to ISO 14044);
- is modular (i.e. the water footprint of different life cycle stages can be summed to represent the water footprint);
- identifies potential environmental impacts related to water;
- includes relevant geographical and temporal dimensions;
- identifies quantity of water use and changes in water quality;
- utilizes hydrological knowledge.

A water footprint assessment can assist in:

- a) assessing the magnitude of potential environmental impacts related to water;
- b) identifying opportunities to reduce water related potential environmental impacts associated with products at various stages in their life cycle as well as processes and organizations;
- c) strategic risk management related to water;
- d) facilitating water efficiency and optimization of water management at product, process and organizational levels;
- e) informing decision-makers in industry, government or non-governmental organizations of their potential environmental impacts related to water (e.g. for the purpose of strategic

planning, priority setting, product or process design or redesign, decisions about investment of resources);

- f) providing consistent and reliable information, based on scientific evidence for reporting water footprint results.

A water footprint assessment alone is insufficient to be used to describe the overall potential environmental impacts of products, processes or organizations.

The water footprint assessment according to this International Standard can be conducted and reported as a stand-alone assessment, where only impacts related to water are assessed, or as part of a life cycle assessment, where consideration is given to a comprehensive set of environmental impacts and not only impacts related to water.

In this International Standard, the term “water footprint” is only used when it is the result of an impact assessment.

The specific scope of the water footprint assessment is defined by the users of this International Standard in accordance with its requirements.

NOTE 1 In this International Standard, the term “product” includes services.

NOTE 2 In this International Standard, the term “environmental impacts” includes categories generally found in impact models used in life cycle assessment, such as impacts on ecosystems, on human health and on resources.

NOTE 3 Reporting is different from communication. Requirements and guidelines for reporting are included in this International Standard, but requirements and guidelines for communication, such as environmental labels or declarations, are outside the scope of this International Standard.

Environmental management – Water footprint – Principles, requirements and guidelines

1 Scope

This International Standard specifies principles, requirements and guidelines related to water footprint assessment of products, processes and organizations based on life cycle assessment (LCA).

This International Standard provides principles, requirements and guidelines for conducting and reporting a water footprint assessment as a stand-alone assessment, or as part of a more comprehensive environmental assessment.

Only air and soil emissions that impact water quality are included in the assessment, and not all air and soil emissions are included.

The result of a water footprint assessment is a single value or a profile of impact indicator results.

Whereas reporting is within the scope of this International Standard, communication of water footprint results, for example in the form of labels or declarations, is outside the scope of this International Standard.

NOTE Specific requirements and guidelines for organizations are given in Annex A.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14044:2006, *Environmental management — Life cycle assessment — Requirements and guidelines*