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Grafisk teknik – Kvantifiering och kommunikation av beräkning av koldioxidutsläpp för tryckta medieprodukter (ISO 16759:2013, IDT)

Graphic technology – Quantification and communication for calculating the carbon footprint of print media products (ISO 16759:2013, IDT)

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Den internationella standarden ISO 16759:2013 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 16759:2013.

The International Standard ISO 16759:2013 has the status of a Swedish Standard. This document contains the official English version of ISO 16759:2013.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Grafisk teknik, SIS/TK 434.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

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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. www.iso.org/directives

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The committee responsible for this document is ISO/TC 130, *Graphic technology*.

Introduction

Reduction of worldwide greenhouse gas (GHGs) emissions is central to the mitigation of climate change (see Annex A), considered to be arising from natural and anthropogenic activities. Industry and governments are already aware of the importance of contributing to this reduction, both nationally and internationally. The printing and associated industries (prepress, finishing, postpress, paper making and related services) have substantially reduced their GHG emissions in recent years. Although this data reduction can be formally captured and measured, it is difficult to compare without a common reference methodology.

This International Standard has been developed to provide a consistent framework methodology for carbon footprint calculation. It is written for prepress, print service providers, printers, media companies, other print content publishers, related industry associations and providers of carbon footprinting tools. It offers a program-neutral method for calculating and communicating the life cycle GHG emissions of print media products, based on calculated CO_2e values, for the single impact category of climate change. This single criteria approach provides the foundation for future work addressing multicriteria impacts which assess all potential impacts that a print media product can have on the environment. This International Standard is based on work done for ISO/TS 14067 and PAS 2050 to provide a specific implementation for the graphic arts industry. Multicriteria calculations based on all four phases of Life Cycle Assessment (LCA), as outlined in ISO 14040, are not within the scope of this International Standard. Further information for conducting LCA are outlined in ISO 14044.

According to this International Standard, quantification of the carbon footprint of a print media product requires a defined goal and scope for the carbon footprinting study. This International Standard also requires a specification of the system boundaries and process inventory as the basis for calculations. It allows for calculations of the whole or part life cycle of print media products.

This International Standard provides consistency, transparency, flexibility and accountability for print media carbon footprint quantifications and their communication. It may provide the following benefits to companies, public bodies and consumers, industry and regulatory bodies:

— consistency in carbon footprint calculator design, to aid relevance and applicability for different print media product sectors and geographies;

— provide print buyers and consumers with a means of quantifying and communicating the carbon footprint of print media products using a common methodology and defined boundaries;

— provide the printing industry with a framework for quantifying and communicating the carbon footprint of print media products using a common methodology and defined boundaries;

— encourage media buyers and consumers of print media products to make informed media investment, purchase and usage decisions, using information validated with calculation, communication and reporting tools that are consistent with this International Standard;

— facilitate the continuous monitoring of the carbon footprint of print as part of its overall environmental impact, and encourage constant improvement within all print sectors;

— enhance the credibility of the printing industry's efforts to quantify, communicate and reduce the carbon footprints of print media products and their raw materials;

— be used as part of GHG emissions management; and

— facilitate performance tracking and progress in GHG emissions reduction for the printing industry.

This International Standard provides a framework methodology for calculating the life cycle GHG emissions of print media products. It aids the print customer's contribution to national and international CO_2e reduction targets, via government schemes or through industry associations. A common framework for calculation and parameter requirements minimizes ambiguity and enables the comparison of the carbon footprints of print media products, based on the goals and scopes of individual carbon footprinting studies (see Annex E). This framework allows contributors to print media supply chains to

calculate partial carbon footprints for use in the supply chain. This International Standard can also be used to calculate carbon footprint values for use in carbon offsetting programs.

A print media product's carbon footprint calculated in compliance with this International Standard can be benchmarked against similar products. This, over time, may provide the following benefits:

— reduced environmental impact of print media products;

— assistance for print buyers making media purchase decisions;

— a framework for comparative estimates of average carbon footprints in different print media sectors, such as newspapers, magazines, books, signs and displays, etc.;

— greater appreciation of the differences in media carbon footprints, and more informed process and supply chain choice for print buyers, printers, service providers, customers and other interested parties;

— enhanced market awareness of print's sustainability and environmental impact;

— criteria for selecting a carbon footprinting tool to calculate the carbon footprint or partial carbon footprint of print media products; and

— comparable preliminary estimations of the carbon footprint of a print media product, based on a pre-existing study.

This International Standard includes examples of carbon footprinting studies and guidance for communicating and verifying carbon footprint information to printers, print buyers, consumers, industry and any other interested parties.

Use of this International Standard facilitates the comparison of the carbon footprint of cross media content and media products delivered digitally, for instance to websites, in emails, on DVDs, mobile devices and so on. However the carbon footprint of specific digital media is outside the scope of this International Standard.

Graphic technology — Quantification and communication for calculating the carbon footprint of print media products

1 Scope

This International Standard specifies the requirements for quantifying the carbon footprint of those processes, materials and technologies required to produce print media products using any form of printing technology and that are within the user's knowledge and control. It is based on a Life Cycle Assessment (LCA) approach, using defined system boundaries and a specified functional unit as the basis for complete or partial carbon footprinting studies. This data can be referenced throughout supply chains for individual print media products.

Together with ISO 14020 and other ISO standards, this International Standard defines standards of completeness to be followed when communicating the results of a carbon footprint study for print media products to business and consumers.

This International Standard provides a framework for carbon calculators that organisations can follow, and that can be used as the structure for market or sector-specific carbon footprinting tools. Studies and tools constructed within this framework methodology provide carbon footprint quantifications of print media products that can be validated and verified.

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, *Environmental management — Life cycle assessment — Requirements and guidelines*

ISO/TS 14067, *Carbon footprint of products — Requirements and guidelines for quantification and communication*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Terms relating to carbon footprint

3.1.1
carbon footprint (CF)
net amount of GHG emissions and GHG removals, expressed in CO_2 equivalents

3.1.2
carbon footprint of a product
CFP
carbon footprint of a product system

3.1.3
carbon footprinting tool
means of calculating the carbon footprint of an object or process

3.1.4
carbon storage
carbon removed from the atmosphere and stored as carbon

3.1.5
product system
collection of processes with elementary and product flows performing one or more defined functions and which models the life cycle of a product

3.1.6
product category rules
set of specific rules, requirements and guidelines for one or more product categories

3.2 Terms relating to greenhouse gases

3.2.1
carbon dioxide equivalent
CO_2e
CO_2 equivalent
unit for comparing the radiative forcing of a GHG to carbon dioxide

Note 1 to entry: The carbon dioxide equivalent is calculated using the mass of a given GHG multiplied by its global warming potential.

[SOURCE: ISO 14064-1:2006; 2.19, without Note 2]

3.2.2
global warming potential
GWP
factor describing the radiative forcing impact of one mass-based unit of a given GHG relative to an equivalent unit of carbon dioxide over a given period of time

Note 1 to entry: Annex A contains a list of GHGs and their global warming potentials published by the Intergovernmental Panel on Climate Change.

[SOURCE: ISO 14064-1:2006; 2.18, modified]

3.2.3
greenhouse gas
GHG
gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere, and clouds

Note 1 to entry: See Annex A for a list of GHGs and their CO_2e values, per Kyoto.

Note 2 to entry: Water vapour and ozone are also anthropogenic as well as natural GHGs but are not included as recognized GHGs due to difficulties in calculating their global warming potentials.

[SOURCE: ISO 14064-1:2006; 2.1, modified]

3.2.4
greenhouse gas emission
mass of a GHG released to the atmosphere

[SOURCE: SOURCE: ISO 14064-1:2006, 2.5, modified]

3.2.5
greenhouse gas emission factor
mass of a GHG emitted relative to an input or an output of a unit process or a combination of unit processes

3.2.6
greenhouse gas removal
mass of a GHG removed from the atmosphere

3.2.7
greenhouse gas sink
process that removes a GHG from the atmosphere

3.2.8
greenhouse gas source
mechanical or natural process that releases a GHG into the atmosphere

EXAMPLE Electrical energy use where the electrical energy has been created from fossil fuel resources.

3.3 Terms relating to life cycle assessment

3.3.1
allocation method
method by which inputs and outputs are allocated to different print media products

3.3.2
cumulative method
method by which values for inputs and outputs for print media products are accumulated throughout the supply chain

3.3.3
end-of-life
stage which begins when the used product is ready for disposal, recycling, reuse, etc. and ends when the product is returned to nature (combustion, deterioration), or is recycled or reused

3.3.4
energy
sources of GHG emissions used for the provision and use of the product

3.3.5
functional unit
quantified and defined single iteration of a printed product, used as a reference unit in a carbon footprinting study

Note 1 to entry: to entry See Figure B.1.

EXAMPLE An A4 page, one square metre printed, a single iteration of a printed product or a complete print run.

[SOURCE: ISO 14040:2006; 3.20, modified to be specific to ISO 16759]

3.3.6
interpretation
process of explaining the results of a life cycle assessment such that it is relevant to the goal and scope of a CFP study

3.3.7
life cycle
consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal

[SOURCE: SOURCE: ISO 14044:2006; 3.1]

3.3.8
life cycle assessment
LCA
compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle