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Clean cookstoves and clean cooking solutions — Harmonized laboratory test protocols —

Part 3: Voluntary performance targets for cookstoves based on laboratory testing

Fourneaux et foyers de cuisson propres — Protocoles d'essai en laboratoire harmonisés —

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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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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 285, *Clean cookstoves and clean cooking solutions*.

A list of all parts in the ISO 19867 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

It is recognized that performance assessed through laboratory testing does not always accurately represent performance when the device/fuel combination is in actual use. Although field performance is often worse than laboratory-based performance, it is still valuable to assess the performance and progress of improved cookstoves through laboratory testing, because laboratory tests can provide guidance for best practices in design that can be translated into better cookstove performance in the field.

Differences between performance as measured in the laboratory and in the field arise for a number of reasons, including the test protocols and actual conditions, variations in the type and characteristics of the fuel (e.g., moisture of wood), deterioration of the cookstove over time, user behaviour, etc., which can impact multiple aspects of cookstove performance.

These benchmarks are based on laboratory test results, thus their validity for real performance estimation of cookstoves and cooking solutions in the field is limited. Guidance on how the targets may be implemented is provided in this document.

Countries and organizations can use these voluntary performance targets as examples and might prefer to develop performance targets based on their own priorities, needs, and markets. Readers are reminded that these voluntary performance targets are only provided as examples.

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Clean cookstoves and clean cooking solutions — Harmonized laboratory test protocols —

Part 3: Voluntary performance targets for cookstoves based on laboratory testing

1 Scope

This document provides voluntary performance targets for cookstoves and is intended to supplement ISO 19867-1. These voluntary performance targets are intended for use with the results of the laboratory testing specified in ISO 19867-1.

These voluntary performance targets are provided as informative guidance, and are not intended as normative requirements for the testing of cookstoves. Performance targets can be considered as an approach to benchmarking potential performance of cookstoves and clean cooking solutions, and provide guidance to help organizations and countries with international collaboration and trade in household energy technologies, fuels, and related products.

This document is therefore not intended to serve as the sole basis for decisions about which technologies/fuels to promote for a given setting, since the performance of a given technology will likely differ under real-use conditions. The best way to assess real-world impacts of a stove intervention or program is through field studies, see ISO 19869[1)], as well as other existing methods[2][3].

In addition to the limitations arising from differences from real-word performance, laboratory test metrics (efficiency, emissions, safety, and durability) do not inform other factors that are critical to the impacts a product, program, or intervention may achieve. These factors include, but are not limited to geographic/cultural suitability, price-affordability, acceptability to the target user group, and other socio-economic factors.

These voluntary performance targets for emissions are intended to evaluate cookstoves used for small-scale household applications, with maximum firepower of up to 10 kW. Cookstoves that have firepower above 10 kW could emit substantially more overall pollutants into the household environment than those under 10 kW, while still meeting targets based on grams emitted per megajoule of useful energy delivered.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19867-1, *Clean cookstoves and clean cooking solutions — Harmonized laboratory test protocols — Part 1: Standardized test sequence for emissions and performance, safety and durability*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19867-1 apply.

1) Under preparation. Stage at the time of publication ISO/DIS 19869:2018.

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ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Symbols and abbreviated terms

ACH	air changes per hour
ALRI	acute lower respiratory infection
CI	confidence interval
CO	carbon monoxide
g	gramme
h	hour
HAP	household air pollution
IER	integrated exposure-response function
J	joule
m	metre
min	minute
mg	milligramme
MJ	megajoule
MJ_d	megajoules delivered
$PM_{2,5}$	particulate matter with an aerodynamic diameter ≤2,5 µm
ppm	parts per million
RR	relative risk
SD	standard deviation
WHO	World Health Organization
µg	microgramme

5 Default target values

5.1 General

Tiered performance targets provide a set of reference values against which to monitor and assess progress on five criteria: efficiency, emissions of fine particulate matter ($PM_{2,5}$), emissions of carbon monoxide, safety, and durability. The tiers range from the lowest level, Tier 0, representing the performance typical of open fires and the simplest types of solid-fuel cookstoves, to the highest level, Tier 5, which represents high levels of performance sought for each of these five characteristics. Distributed between these lower and upper levels are tiers representing intermediate goals that can be used to assess progress along a continuum of performance.

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