TECHNICAL REPORT

ISO/TR 21276

First edition
2018-04

Clean cookstoves and clean cooking solutions — Vocabulary

Fourneaux et foyers de cuisson propres — Vocabulaire

Reference number
ISO/TR 21276:2018(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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 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*.

Introduction

The purpose of this document is to establish a precise vocabulary for cookstove technology and testing. To establish commonalities among cooking systems with differing boundaries, this document repeats definitions found in other products of ISO/TC 285.

Confirming acceptable cookstove performance in any particular aspect requires not only a vocabulary definition of that aspect, but also specific measurement techniques and methods for determining a performance indicator, as well as social agreements on the quantitative values of such indicators that correspond to suitable performance; these concerns are addressed in other documents of ISO/TC 285.

Clean cookstoves and clean cooking solutions — Vocabulary

1 Scope

This document defines terms for use in documents prepared by ISO/TC 285. Basic schematic illustrations are also provided to demonstrate relationships among certain concepts defined herein.

This document deliberately excludes some information that could be useful in the practice of testing and evaluation. Designation of specific products, even as examples, is avoided so that the document stays up-to-date and inclusive.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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/

3.1 Appliances

3.1.1
batch-loaded cookstove
cookstove (3.1.7) into which fuel is infrequently loaded during operation

3.1.2
built in-place cookstove
cookstove (3.1.7) in which the majority of assembly and/or construction takes place where it will be used

3.1.3
candidate cookstove
cookstove (3.1.7) being considered by a *target community* (3.6.16)

3.1.4
clean cookstove
cookstove (3.1.7) that reduces emissions to an acceptable level when fed with a defined fuel or fuels

Note 1 to entry: The determination of an acceptable level of emissions depends on programmatic goals, and includes consideration of health and *environmental impacts* (3.6.7) and best available technology.

3.1.5
continuously fed cookstove
cookstove (3.1.7) in which fuel is constantly or frequently fed during operation

3.1.6
cooking vessel
pot or container in which food or water is heated and prepared

3.1.7
cookstove
appliance primarily employed for the cooking of food, but which can also be employed for space or water heating, or other purposes

3.1.8
griddle cookstove
comal cookstove
plancha cookstove
cookstove (3.1.7) in which the majority of cooking occurs by placing the food directly on a heated surface, usually a metal or ceramic plate

Note 1 to entry: The griddle cookstove has regional names such as “plancha cookstove”, “comal cookstove” and “mittad”.

3.1.9
improved cookstove
cookstove (3.1.7) proposed for a geographic region or *target community* (3.6.16), which has been shown to outperform a *baseline* (3.3.1) with respect to primary criteria that can include *emission factors* (3.3.9), *energy efficiency* (3.3.11), *durability* (3.3.8) and/or *safety* (3.3.22)

3.1.10
pot skirt
device that encircles a *cooking vessel* (3.1.6) for the purpose of increasing heat transfer to the vessel

Note 1 to entry: The pot skirt can be part of cookstove design, part of the pot design or an accessory.

3.1.11
retained heat cooker
insulated container that can accommodate one or more *cooking vessels* (3.1.6) that have been previously heated on a *cookstove* (3.1.7)

3.1.12
traditional cookstove
type of *cookstove* (3.1.7) or three-stone open fire that has been in long existence in a region and has been established from generation to generation

3.1.13
water heating cookstove
cookstove (3.1.7) designed to transfer heat to water for space heating and other purposes

3.2 Fuel

3.2.1
as fired
condition of a fuel immediately before testing in a *cookstove* (3.1.7)

3.2.2
as received
condition of a fuel as it is received for testing in a *cookstove* (3.1.7)

3.2.3
ash
residue remaining after combustion of a fuel under specified analytical conditions, typically expressed as a percentage of the mass of dry matter in fuel

3.2.4
ash solids
portion of the *remaining solids* (3.2.23) that has negligible recoverable *heating value* (3.2.16)

3.2.5
biofuel
material of biological origin used as fuel, including, but not limited to, wood, agricultural residues, dung, biogas and processed lignocelluloses

EXAMPLE Charcoal, briquettes, pellets.

3.2.6
burn sequence
combustion of fuel in a *cookstove* (3.1.7) from *ignition* (3.2.18) to an end point defined in a specific protocol

3.2.7
char
carbonaceous residue resulting from pyrolysis or incomplete combustion

Note 1 to entry: The composition of *residual fuel* (3.2.24) is largely char, see Clause 4.

3.2.8
combustible mass
portion of the fuel consisting of fixed carbon and volatile components, excluding *ash* (3.2.3) and moisture, which can potentially be combusted

3.2.9
conventional fuel
fuel or fuels regularly employed by the *target community* (3.6.16)

3.2.10
dry fuel
fuel from which all moisture has been removed by heating to 3 °C above the local boiling point

3.2.11
dry basis
basis for calculation of sample quality characteristics, in which the mass of the sample without water content is used

Note 1 to entry: The dry basis is expressed in per cent.

3.2.12
exhaust
gases and suspended *particulate matter* (3.4.7) resulting from the combustion process

3.2.13
fly ash
ash (3.2.3) that is entrained in the *exhaust* (3.2.12)

3.2.14
fossil fuel
carbonaceous material derived from geological deposits, including coal, peat, natural gas and liquid fuels

3.2.15
fugitive emissions
emissions that come from a cookstove into the cooking environment as opposed to those removed from the cookstove via a chimney

3.2.16
heating value
calorific value
energy per unit mass released in the complete combustion of a sample of fuel, MJ.kg^{-1}

Note 1 to entry: When determining heating value, the state of the fuel, as defined by the *as fired* (3.2.1), *as received* (3.2.2) or *dry fuel* (3.2.10) conditions shall be recorded, and the heating value shall be stated as either *higher heating value* (3.2.17) or *lower heating value* (3.2.20).

3.2.17
higher heating value
measured value of the energy of combustion of a fuel burned in oxygen in a bomb calorimeter under such conditions that all the water of the reaction products is in the form of liquid water at 15 °C, MJ.kg^{-1}

3.2.18
ignition
start of a period of combustion

3.2.19
kindling
readily ignitable material used for starting a fire

3.2.20
lower heating value
calculated value of the energy of combustion of a fuel burned in oxygen in a combustion bomb under such conditions that all the water of the reaction products remain as water vapour at 150 °C, MJ·kg^{-1}

Note 1 to entry: The *heating value* (3.2.16) at constant pressure is generally used.

3.2.21
raw fuel
mass of the unburned fuel supplied to a *cookstove* (3.1.7) during the course of the *burn sequence* (3.2.6)

Note 1 to entry: Raw fuel is expressed in kilograms.

3.2.22
recovered fuel
material that has a usable energy content that remains after a *burn sequence* (3.2.6) is completed

3.2.23
remaining solids
solids, excluding *fly ash* (3.2.13), remaining at the completion of a *burn sequence* (3.2.6)

Note 1 to entry: Remaining solids are a mixture of *ash solids* (3.2.4) and *recovered fuel* (3.2.22), see Clause 4.

3.2.24
residual fuel
portion of the *recovered fuel* (3.2.22) that is not *reused fuel* (3.2.25)

3.2.25
reused fuel
material separated from the *recovered fuel* (3.2.22) that has properties such that it can be employed in a subsequent *burn sequence* (3.2.6) in the same *cookstove* (3.1.7)

Note 1 to entry: Reused fuel comprises primarily partially burned fuel and can include some *char* (3.2.7), see Clause 4.

3.2.26
reused fuel in
reused fuel (3.2.25) from a prior *burn sequence* (3.2.6) that is added to the *raw fuel* (3.2.21) to make up the *total fuel* (3.2.27)

3.2.27
total fuel
sum of the masses of the *raw fuel* (3.2.21) and the *reused fuel in* (3.2.26)

3.2.28
wet basis
basis for describing the composition of a fuel sample as the ratio of the mass of a component to the mass of the fuel in its *as received* (3.2.2) or *as fired* (3.2.1) state

Note 1 to entry: The wet basis is expressed in per cent.

3.3 Metrics

3.3.1
baseline
status of a market, community or *cooking system* (3.5.4) prior to intervention, determined by measurements and metadata

3.3.2
burn rate
rate at which test fuel is consumed in a *cookstove* (3.1.7)

Note 1 to entry: The burn rate is expressed in kg [*dry basis* (3.2.11)] per hour.

3.3.3
char energy productivity
ratio of the energy of usable *char* (3.2.7) produced to the *fuel energy in* (3.3.14)

Note 1 to entry: When determining char energy productivity, the protocol should clearly specify the methodology for determining the usable char.

3.3.4
char mass productivity
ratio of the mass of usable *char* (3.2.7) produced to the mass of dry *raw fuel* (3.2.21)

Note 1 to entry: When determining char mass productivity, the protocol should clearly specify the methodology for determining the usable char.

3.3.5
cooking efficiency
energy efficiency (3.3.11) for *cookstoves* (3.1.7) used only for cooking

Note 1 to entry: Energy efficiency for *space heating* (3.5.12) can differ from cooking efficiency for cookstoves.

3.3.6
cooking power
rate of energy delivered to the contents of a *cooking vessel* (3.1.6) over any chosen period during the course of a *cooking sequence* (3.5.3) or other task

Note 1 to entry: The cooking power is expressed in kilowatts.

3.3.7
cooking time
elapsed time from the time when the food is placed on the *cookstove* (3.1.7) to the time when the food is removed from the cookstove

Note 1 to entry: If multiple cookstoves are used, the cooking time shall be taken from the first placement to the final removal.

Note 2 to entry: The cooking time is expressed in seconds.