SLOVENSKI STANDARD
SIST EN 13439:2003

01-september-2003

Embalaža – Stopnja pridobivanja energije – Definicija in način izračuna

Packaging - Rate of energy recovery - Definition and method of calculation

Verpackung - Rate der energetischen Verwertung - Definition und Berechnungsverfahren

Emballage - Taux de valorisation énergétique - Définition et méthode de calcul

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **EN 13439:2003**

SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003

ICS:

13.030.50	Recikliranje	Recycling
55.020	Pakiranje in distribucija blaga na splošno	Packaging and distribution of goods in general

SIST EN 13439:2003 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

SIST EN 13439:2003

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003

SIST EN 13439:2003

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13439

May 2003

ICS 13.020.20; 55.020

English version

Packaging - Rate of energy recovery - Definition and method of calculation

Emballage - Taux de valorisation énergétique - Définition et méthode de calcul

Verpackung - Rate der energetischen Verwertung - Definition und Berechnungsverfahren

This European Standard was approved by CEN on 11 March 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

© 2003 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 13439:2003 E

SIST EN 13439:2003

Contents

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003

SIST EN 13439:2003

Foreword

This document (EN 13439:2003) has been prepared by Technical Committee CEN/TC 261 "Packaging", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

This document contains annex A, which is normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003

SIST EN 13439:2003

Introduction

The Directive on Packaging and Packaging Waste (94/62/EC) defines requirements for packaging to be considered recoverable. This European Standard amplifies the rate of energy recovery of packaging waste. As a basis for the calculation, the general flow chart of the packaging and packaging waste streams presented in EN 13437 is used.

The purpose of packaging is the containment, protection, handling, delivery and presentation of products. Energy recovery of used packaging is one of several recovery options within the overall life cycle of packaging. In order to save resources and minimise waste, the whole system in which the packaging takes part should be optimised. This includes prevention as well as reuse and recovery of packaging waste.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003

SIST EN 13439:2003

1 Scope

The scope of this European Standard is to present a method to calculate the rate of energy recovery of packaging.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13193:2000, *Packaging - Packaging and the environment - Terminology.*

3 Terms and definitions

For the purposes of this European Standard, relevant terms and definitions contained in EN 13193:2000 together with the following apply:

3.1
RDF Refuse Derived Fuel
waste treated to make it more suitable as a fuel

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.2
PDF Packaging Derived Fuel
fuel derived by separate collection of combustibles, mainly consisting of used packaging

SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003

4 Calculation principles

The following principles of calculation apply:

a) the calculation method can be applied to any group or sub-group of combustible packaging for which data can be provided in the format of the general flow chart (Annex A). It is expected, however, that the following major material groups, for which specific flow charts have been prepared will normally be used: paper and board, plastics, aluminium (foil with a thickness below 50 microns) and wood;

b) the rate shall be determined on national level. Exports of packaging waste for energy recovery by a Member State will be taken into account in the calculation of its own rate of energy recovery. Unless otherwise specified by a particular European Commission Decision, the numerator of the equation should include packaging exported for energy recovery;

c) the measurement points for determining the rate of energy recovery shall be based on inputs to relevant processes defined in the flow chart;

NOTE This is in accordance with the principle laid down in the European Commission's Decision on database (97/138/EC). Using these points of measurement is the most practical way of obtaining reliable data.

d) the energy recovery rate shall be calculated for a period of time given by legislation, and the determination of numerator and denominator quantities shall be at coincident times;

NOTE This principle presumes a steady state for the flow of material through the processes defined in the flow chart. The effect on the calculated rate arising from fluctuating flows and from long delays between processes is complex. The rate defined in 6 allows a simple adjustment for long delays.

e) the measurement of the flow over the given time-scale shall be in units of weight.

SIST EN 13439:2003

5 Calculation method

The general flow chart is reproduced in this standard as annex A and annotated as described in this section. Referring to the principle given in paragraph 4 d), the numerator and denominator of the ratio are input-based flows to the relevant processes.

Numerator: quantity of combustible packaging waste collected and supplied for energy recovery (see NOTE 1 below).

Denominator: quantity of packaging put on to the market and used for the first time (see NOTES 2 and 3).

With reference to the diagram (annex A) the rate of energy recovery is calculated as follows:

$$r_e = \frac{\varepsilon}{\alpha + \beta - \gamma}$$

where

ε = quantity of packaging waste used for energy recovery, including both one-way packaging and reusable packaging at the end of its life cycle

α = quantity of one-way packaging placed on the market

β = quantity of reusable packaging placed on the market and used for the first time

γ = quantity of used packaging not available as waste as it is used for another purpose (see NOTE 3)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

NOTE 1 With reference to 4 c) and 4 d), this is normally the input flow to the energy recovery process. In relation to collected packaging stored for a long period or exported particularly over long distances, further explanation or evidence of burning in plant with energy recovery facilities might be expected for inclusion of the related quantities in the calculation.

SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-

NOTE 2 The term "Used for the first time" covers both one-way packaging and new reusable packaging which is normally replacing reusable packaging whose use is no longer viable (for instance cracked glass bottles or broken wooden pallets).

NOTE 3 As appropriate, the denominator will be reduced by the quantity of packaging (γ in annex A) still in use for its original or new purposes and not available as waste. Normally this reduction in quantity would be very low. In the context of European Union Databases on packaging and packaging waste, if this value (γ) is high then further explanation would be expected.

6 Determination of ε

ε is measured as an input stream to relevant energy recovery process.

I) In the case of combustible packaging waste as an integrated part of municipal solid waste (MSW), the total input flow, q_1, is measured at the entrance of the incinerator or RDF plant. It is further necessary to know the fraction "x" of combustible packaging waste present in this flow:

$$\varepsilon_1 = x \bullet q_1(\mathrm{MSW})$$

II) In the case of separately collected packaging waste, either as such (PDF), or incorporated in a dry combustible fraction, for use as a fuel, the total input, q_2, is measured at the entrance of the preparation plant. The amount of packaging waste used for energy recovery in this stream is the total amount, q_2, multiplied by the fraction of combustible packaging waste, "y":

$$\varepsilon_2 = \gamma \bullet q_2(\mathrm{PDF})$$

Taking the different types of waste flows into account:

$$\varepsilon = \varepsilon_1 + \varepsilon_2$$

SIST EN 13439:2003

The fractions x and y are determined according to sampling procedures in use in the Member States. For references to sampling, see Bibliography.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 13439:2003
https://standards.iteh.ai/catalog/standards/sist/befe2057-dfd9-4c6b-be44-5f01d6fc6afe/sist-en-13439-2003