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Household biogas system requirements: design, installation, operation, maintenance and safety

Exigences relatives aux systèmes de biogaz domestiques: conception, installation, utilisation, maintenance et sécurité

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Foreword

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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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 255, *Biogas*.

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.

Introduction

A household biogas system processes organic waste such as food scraps and manure into biogas which can be used for cooking, and into digestate that is convertible to natural fertilizer which can be used for gardening or soil improvement.

Biogas is a flammable gas, mainly composed of methane and carbon dioxide, generated by the anaerobic fermentation (without oxygen) of organic matter.

A household biogas system operates as a continuous-flow system, i.e. organic waste is fed in one end, and the gas and fertilizer are emitted from the other. The generated biogas is filtered to remove any unpleasant odours and toxic gases.

The digestate can be sanitized to reduce the amount of active pathogens in the effluent.

This document for Household Biogas Systems covers the small sized production and output of biogas for personal use in homes, kitchens, small farms, etc.

This document is applicable to all types and styles of household biogas systems, and it does not address any particular manufacturer of household biogas systems.

Household biogas system requirements: design, installation, operation, maintenance and safety

1 Scope

This document covers the requirements for the design, installation, operation, maintenance and the safety of Household Biogas Systems (HBSs), producing biogas in an amount equivalent to an installation capacity of less than 100 MWh per year.

The document applies to HBSs comprising of pipeline and equipment with pressure levels of less than 5 kPa.

Any equipment or appliances connected to an HBS or utilizing the biogas energy of an HBS are not a part of the scope of this document.

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.

3 Terms and Definitions

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

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
anaerobic digestion
biological conversion of biodegradable materials by micro-organisms in the absence of oxygen creating two main products: *biogas* (3.2) and *digestate* (3.6)

[SOURCE: ISO 20675:2018, 3.1]

3.2
biogas
gas produced by anaerobic digestion of organic matter without further upgrading or purification

[SOURCE: ISO 20675:2018, 3.2, modified — 'gasification of biomass or power to gas from biomass sources' removed.]

3.3
biogas installation
installation including its pipelines, pipes and accessories for anaerobic digestion of *biomass* (3.5)

[SOURCE: ISO 20675:2018, 3.5, modified — 'gasification of biomass and waste, upgrading of biogas, liquefaction of biogas, storage of CO_2, storage of auxiliaries, storage of biomass and digestate' removed.]