International Standard

ISO 22734-1

Hydrogen generators using water electrolysis —

Part 1: Safety

Générateurs d'hydrogène utilisant le procédé d'électrolyse de l'eau —

Partie 1: Sécurité

First edition
2025-07

Reference number
ISO 22734-1:2025(en)

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

Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/CLC/JTC 6, *Hydrogen in energy systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 22734-1 cancels and replaces ISO 22734:2019.

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Introduction

The electrochemical cells of a hydrogen generator system dissociate water molecules (H_2O) into two hydrogen (H_2) gas molecules and one oxygen (O_2) gas molecule when direct electrical current (e-) is applied. H_2 gas forms at the negative (-) cathode electrode and O_2 gas forms at the positive (+) anode electrode. An ion transport medium between the electrodes, a solid electrolyte membrane or a liquid electrolyte held in a microporous diaphragm, additionally functions to keep product H_2 and O_2 gases separate.

Water electrolysis hydrogen generator systems include the cell(s), electrical conditioning, gas processing, feed water, electrolyte management, cooling, ventilation, and control equipment. Gas compression, feed water conditioning, and other auxiliary equipment can be included. These systems can scale from small self-contained appliances to a group of factory-matched modules comprising large plant size installations.

This document is intended to assess water electrolysis hydrogen generator safety and may be used for certification purposes.

NOTE See ISO/IEC 17000 for further guidance on certification.