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Device for testing the performance of a hydrogen sensor modified from the morris prototype

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A hydrogen permeation sensor based on the Morris prototype was designed, constructed and tested in this work. The cylinder was changed from a disc shape to a parallelepiped shape to facilitate the adhesion of the Nafion membrane and to decrease the potential H leakage on the edges of the cylinder. To test the ability of the sensor to detect hydrogen permeation, a device was

designed that comprised two interconnected cells operating simultaneously. This device detects the permeation of H by the sensor and the potential reduction of a passive film. The sensor was calibrated, and the calibration curve was shown to be consistent with the Nernst equation.

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