
#### Abstract

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## Sensitive Gaseous Hydrogen Detection System

An extremely sensitive hydrogen detection system can measure the concentration of gaseous hydrogen in air to a sensitivity as high as several parts per million. The system uses a new type of hydrogen sensor as the detecting element, and has an overall detection sensitivity and response speed that are higher than conven-
hydrogen bubble chambers, mines, refineries, chemical process plants, and aerospace facilities.

## Notes:

1. Hydrogen concentrations of from 2 parts per million to $30 \%$ have been measured with this system.

tional hot-wire or hot-thermistor types of detectors.

- The detecting element is a thin-film tungsten oxide $\left(\mathrm{WO}_{3}\right)$ resistor sensitized to hydrogen by the addition of very small amounts of platinum. When the sensitized detecting element is maintained at a temperature in the range of 523 K to $673 \mathrm{~K}\left(250^{\circ}\right.$ to $\left.400^{\circ} \mathrm{C}\right)$, its electrical resistance (which is inversely proportional to the microammeter reading) varies by a factor as large as $10^{6}$ to 1 in response to corresponding variations in the ambient hydrogen concentration. Because the detector is a rugged thin-film resistor requiring only simple electronic circuitry, the system can be conveniently and economically employed throughout a given installation.

The system can be adapted to serve as a leak detector and hydrogen-concentration hazard alarm wherever hydrogen is used; i.e., in industrial processes,
2. The following documentation may be obtained from:

National Technical Information Service
Springfield, Virginia 22151
Single document price $\$ 3.00$
(or microfiche $\$ 0.95$ )
Reference:
NASA-CR-10268 (N70-25297), Gaseous Hydrogen Detection System

## Patent status:

No patent action is contemplated by NASA.
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