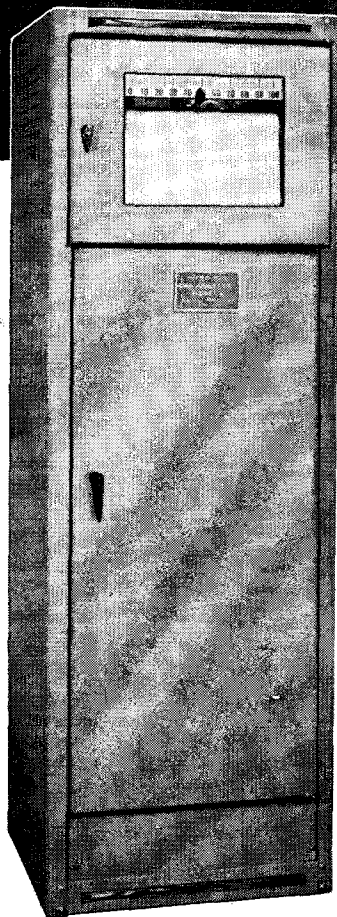


Wherever process control needs
• AUTOMATIC • ACCURATE •
CONTINUOUS
GAS ANALYSIS



...this instrument offers
THESE IMPORTANT
ADVANTAGES

- ◀ Continuous analysis with automatic, periodic standardization.
- ◀ Reliable and consistently accurate under plant conditions.
- ◀ Operated and maintained by plant technicians.
- ◀ Rapid response to gas changes.
- ◀ High sensitivity with high discrimination.
- ◀ Adaptable to warning for predetermined critical concentration.
- ◀ Adaptable to process control by use of circular-chart recorder with pneumatic control system.

THE BAIRD ASSOCIATES INFRARED ABSORPTION TYPE AUTOMATIC RECORDING GAS ANALYZER has proved its value in the chemical, petroleum, and allied industries.

Typical applications for this efficient instrument are: • Analysis of butadiene for the manufacture of synthetic rubber • Control of butene-1 in isobutylene • Measurement of carbon monoxide in hydrogenation gases • Measurement of the CO/CO₂ ratio in blast furnace top gases • Measurement of methane in a process plant • Ammonia gas determination • Detection and measurement of acetone, alcohol, or similar fumes where high concentration would cause an explosive hazard • Measurement of acetylene in continuous synthetic plants.

If you have a control problem which involves gas analysis, consideration of the infrared absorption technique may provide a solution. We welcome opportunities to discuss new or existing applications in control and measurement of gas and gaseous components.

The Baird Associates infrared gas analyzer can be furnished in styles to suit various requirements, including remote indicating and recording, explosion-proof housings, and the cabinet style shown above.

For complete details on the Baird Associates infrared gas analyzer, request Bulletin XXXI. For information on its specific application to your problems, we will gladly study your specifications and report.

Baird Associates, Inc.

INDUSTRIAL PHYSICISTS

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CAMBRIDGE 38, MASS

INFRARED ABSORPTION
BANDS PROVIDE
INDEX OF
GAS CONCENTRATIONS

Recording Analyzer has
Wide Use in Chemical
and Petroleum Industry

Automatic means for obtaining a continuous record of the percentage of one component in a gas mixture are made available in an instrument which detects the presence of a specified gas and measures its concentration by an interesting application of infrared absorption characteristics of gases. This instrument provides rapid accurate analysis of all gases except those few which have no infrared absorption bands, such as oxygen, hydrogen and nitrogen.

The instrument actually measures the total energy remaining in an infrared beam after it has passed through the mixture of gases containing the component to be determined. The apparatus is constructed so that only the changes in the desired component affect the indication; hence the record of infrared energy in the measured beam can be expressed in terms of concentration of the gas to be checked, since the change in total energy is an inverse function of the concentration of this component.

The measuring system employs a potentiometer-type recorder connected so as to indicate the amount of resistance unbalance in a Wheatstone bridge containing two bolometer arms. The bolometers change resistance in proportion to the infrared energy they receive. The bolometers receive energy from a common source, the beams being carefully balanced for equal energy so that the Wheatstone bridge is normally in balance.

In a simple form of infrared absorption gas analyzer, the sample gas is passed through a cell which covers both infrared beams so that the bolometers are affected equally for any condition of gas of the sample cell and the bridge remains balanced. Another cell, containing a pure form of the gas to be determined, is interposed in only one of the infrared beams. The concentration of gas in this filter cell is high enough to cause total absorption of energy at the characteristic wave length for the gas. Thus any change in the concentration of the component being checked in the sample cell affects only the bolometer receiving its energy from the "unfiltered" beam and the resulting resistance changes, measured by the potentiometer recorder, show the gas concentration.

In its commercial form, the infrared gas analyzer has high sensitivity, means for range expansion, and provision for adjusting response to suit particular requirements. An explosion-proof model is available. Used with a circular-chart recorder governing a pneumatic system, the instrument provides close control in processes where concentration of a gaseous component is a critical factor.

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