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SENSITIVE ELEMENTS FOR LEAK DETECTION

The sensitive elements, sometimes called Ozotron valves, manufactured by Associated Electrical Industries Limited, are devices for the detection of minute concentrations of halogen ions in the atmosphere. They take advantage of the unique property of a hot platinum surface of ionising halogens and their compounds.

The valve, which is open to the atmosphere, comprises an anode indirectly heated to about 800°C, surrounded by a cold cathode—both electrodes being made of platinum. A voltage of about 230 d.c. is applied between anode and cathode and in normal conditions a small standing current is passed by the valve. If, however, halogen or halogen compounds such as freon or trichlorethylene are present in the atmosphere, ionisation occurs at the surface of the anode and the ions produced flow across the cathode, thus appreciably increasing the current. Applications of this device are principally in leak detection. For example, a tank may be tested by filling it with a halogen gas. A fan is arranged to suck gas through the Ozotron, which is mounted behind a short nozzle. Should the tank leak at any point, halogens will be detected immediately the nozzle is brought to that point. The overall sensitivity of the equipment is such that it can detect one part of halogen per 1,500,000 parts of air.

