

APPLICATION NOTE

Hydrogen Detection in Oil Refineries

Due to its chemical properties, hydrogen poses unique challenges. Hydrogen gas is colorless, odorless, and not detectable by human senses. It is lighter than air and difficult to detect where accumulations cannot occur.

Hydrogen plays a pivotal role in a whole host of refining operations, from hydrocracking, to the treatment of gas streams, to catalytic reforming (as shown below). In order to address the hazards posed by hydrogen, layers of protection are introduced to reduce the incidence of hazard propagation. These layers encompass different detection techniques to increase the likelihood that hydrogen is detected. Continuous hydrogen monitors like catalytic detectors can contribute to detecting small leaks. In turn, ultrasonic gas leak detectors can respond to high pressure releases of hydrogen. To further protect a plant against fires, hydrogen-specific flame detectors can supervise entire process areas. The combination of detectors increases the odds that hydrogen gas dispersal or fire is identified early on, either before ignition or an explosion occurs.

