

## Effect of sensor position in hydrogen station

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In recent years, hydrogen refueling stations have been constructed in Korea, including Yonsei University. Hydrogen refueling station must be safe and secure because hydrogen is stored in large quantities under high pressure. In this study, we focused on the modeling of predicting the phenomena of hydrogen accidents. A number of accident scenarios were developed using FMEA. The scenarios are classified under small, medium and large release cases and divided by dispenser, compressor and storage tank. The hydrogen clouds are farther from the ground level or buildings than in the case of the CNG due to buoyancy and high sonic speed at the release. In these cases, there was minimal difference between a small release from 40MPa hydrogen station and from 20MPa CNG station, however, a medium release from a hydrogen station was significantly more severe. On the other hand, in the case of a large release, it's indicated that CNG is more dangerous than hydrogen, because the reason is hydrogen diffuses promptly. Finally, in determining the safety distance, this study is useful for hydrogen station standard, code and regulation.