Hydrogen Safety Codes & Standards

A fundamental challenge to the commercialization of hydrogen energy technologies is the lack of safety information on hydrogen components and systems used in a hydrogen fuel infrastructure. A second challenge is the limited availability of uniform international codes and standards necessary to standardize technology. Internationally accepted codes and standards will be necessary to increase the confidence of local, regional and national officials in the use of hydrogen and fuel cell technology.

Limited Safety Data for Hydrogen Systems

Hydrogen has been used for years in industrial applications. However, only a small number of the hydrogen and fuel cell technologies, systems and components required for the hydrogen economy are in operation today. Many are in the pre-commercial development phase and are still proprietary. Therefore, only limited data are available on the operational and safety aspects of these technologies.

In addition, the historical data used in assessing safety parameters for the production, storage, transport, and use of hydrogen are now several decades old and will need to be re-assessed and re-validated. These safety parameters were established for the industrial use of hydrogen and were not designed for the volume and uses envisioned in the hydrogen economy.

Liability / Insurability Issues

New technologies not yet recognized in codes and standards may have difficulty in obtaining reasonable rates for insurance, and may not be approved in some cases. The potential for lawsuits and the need to insure facilities and vehicles are serious concerns that could affect the commercialization of hydrogen technologies.

Uniform codes and standards will reduce risks perceived by insurers of new and innovative hydrogen technologies.

International Competitiveness

Hydrogen and fuel cell codes and standards must be harmonized on an international basis. Internationally accepted safety codes and standards will provide the basis for the economies of scale necessary to commercialize new and innovative hydrogen and fuel cell technology. To facilitate innovation, codes and standards should be performance based, providing the private sector with the freedom to develop technology within the performance standards adopted by government authorities.

Need for Increased Understanding of Hydrogen Systems

Understanding hydrogen and hydrogen system safety needs is critical for local government officials, fire marshals, and the general public. Emergency personnel must be trained on the special properties of hydrogen and the methods used to respond to accidents involving the use of hydrogen. Developing a set of uniform codes and standards for hydrogen energy systems will increase the confidence of local and municipal officials in permitting the development of hydrogen infrastructure.

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The IPHE partners are working together to ensure internationally accepted hydrogen and fuel cell safety codes and standards are developed. For more information, please visit the IPHE website at www.iphe.net.