

PROTEGO® Applications for Electrolysis Processes



HYDROGEN – ENERGY CARRIER OF THE FUTURE FOR A SUSTAINABLE INDUSTRY

When producing and transporting hydrogen, the safety of the systems and the protection of people have top priority. Hydrogen is highly flammable and can form highly explosive mixtures with air. Hydrogen-air mixtures are characterized by the lowest minimum ignition energies and the smallest max. experimental safety gap sizes.

This risk of explosion increases further if hydrogen is present in combination with a higher concentration of oxygen than in ambient air.

Devices in explosion group IIC, which are approved for hydrogen, are generally not suitable for electrolysis applications, as they are only tested for hydrogen-air mixtures. In electrolysis for hydrogen production, it must be assumed that binary hydrogen-oxygen mixtures will form, which pose a significantly higher hazard potential.

These mixtures and applications, therefore, do not fall within the scope of standard test regulations for Flame Arrester, such as ISO 16852 and ISO-IEC 80079-49 – **PROTEGO® rises to the challenge**

PROTEGO® SOLUTION FOR YOUR ELECTROLYSIS PROCESS:

- We offer safety devices specifically tailored to your application, with consideration given to the required hydrogen-oxygen concentration.
- In our test laboratory, we have the capability to determine the safety-related parameters for your application and mixtures, allowing us to develop a customized solution.
- We collaborate with various approval institutions and can demonstrate a multitude of successful tests and certifications for hydrogen applications according to European and international standards.
- The world's largest research and development center for Flame Arresters, as well as the largest flow test facility of its kind, are available for custom developments to advance hydrogen technologies.

PROTEGO® Project Reference of an Electrolysis Process

Atmospheric end-of-line Deflagration and in-line Detonation Flame Arresters for special hydrogen/oxygen concentrations have been developed, approved, and installed in cooperation between PROTEGO® and an electrolyser manufacturer.



PROTEGO® LH/AD-80-X42
Atmospheric Deflagration Flame Arrester,
end-of-line



PROTEGO® DA-SB-150/80-P1,5-X41
In-line Detonation Flame Arrester



PROTEGO® DA-G-02H2
In-line Detonation Flame Arrester

We have developed and approved a series of Flame Arresters that can be used for any mixture proportions of hydrogen in oxygen.

In the production of hydrogen through electrolysis or other manufacturing processes, as well as in the transportation of hydrogen, utmost attention must be paid to safety and efficiency to minimize risks.

Our team of engineers and specialists advises, develops, and supports you from selection through installation to maintenance of customized hydrogen-oxygen protection systems.

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