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Technical Information – Guideline
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Conversion of High Pressure Gas Steel Pipelines for a Design Pressure of more than 16 bar for Transportation of Hydrogen

Umstellung von Gashochdruckleitungen aus Stahlrohren für einen Auslegungsdruck von mehr als 16 bar für den Transport von Wasserstoff

GAS

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Preface

This guideline has been developed by the project group “conversion of gas pipelines” within the Technical Committee “Gas Transportation Pipelines”.

In the context of the transition to renewable energy sources and the ambitious climate goals the Federal Republic of Germany has defined, alternative options to the currently used fossil energy as well as efficient energy storage technology are sorely needed.

Power-to-gas technology, abbreviated as “PtG” or “P2G”, is a promising lead with the potential to help combat climate change. Through hydrogen electrolysis and the expenditure of electricity, power-to-gas technology creates fuel gas. The hydrogen that is the preferable product of this process can serve as energy storage and be used across various sectors.

The existing gas infrastructure already has a large potential for hydrogen injection as well as hydrogen distribution and storage. Hydrogen can either be used in its purest form or added to the flow of natural gas.

The most essential prerequisite for using hydrogen in the existing gas infrastructure is the technical suitability of the system. This requires observing the possible impact of hydrogen. Especially hydrogen influence on pipeline materials requires precise testing/evaluation which in turn is the very foundation for converting a gas pipeline to the transportation of hydrogen or hydrogen-rich gases.

For this purpose, this Guideline contains guiding principles that have been specifically created to serve as orientation for a systematic procedure on the evaluation and conversion of existing gas transportation pipelines to the operation with hydrogen. This Guideline especially describes technical aspects of conversion and the procedure for determining a gas pipeline’s material suitability.

Earlier Versions

This Guideline is a new publication.