Integration of high temperature PEM fuel cells with a methanol reformer - DTU Orbit
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Integration of high temperature PEM fuel cells with a methanol reformer
On-board generation of hydrogen by methanol reforming is an efficient and practical option to fuel PEMFC especially for
vehicle propulsion purpose. The methanol reforming can take place at temperatures around 200°C with a nearly 100% conversion at a hydrogen yield of about 400 L–(h–kg catalyst)-1. The CO content in the reformate gas at this temperature is less than 0.2 vol%. The recently developed high temperature PEMFC based on acid doped PBI membranes can operate in the same temperature range and tolerate a few percent of CO in the feeding gas. The high CO tolerance makes it possible to use the reformate gas directly from the reformer without further CO removal. Integration of high temperature PEMFC with a reformer is expected to improve the system efficiency and simplify the system construction and operation. The present work has demonstrated this possibility. (c) 2005 Elsevier B.V. All rights reserved.

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