Contribution ID: **195** Type: **Poster**

C2Po1D-03: Screening of ortho-parahydrogen catalysts

Tuesday 20 May 2025 09:15 (1h 45m)

The growing demand for liquefied hydrogen (LH2) results in an increased need for ortho-parahydrogen catalysts. Currently, the LH2 supply chain relies heavily on a single catalyst product: hydrous ferric oxide, commercially available as "Ionex-Type O-P Catalyst"(Ionex) from Molecular Products. On the one hand, this reliance poses a supply vulnerability for liquefaction plants under construction. On the other hand, previous research indicates the potential for catalysts with much higher conversion activity than Ionex. This holds promise for optimizing liquefaction plants thermodynamically and substantially reducing the size of the ortho-para converters.

To identify alternative catalyst options, a screening of several catalyst samples was conducted as part of the HyCat project. The samples were synthesized by external manufacturers and tested at 77.3 K and 2.5 bar(a) in the Ortho-Para Catalyst Test Facility at TU Dresden.

This work presents the results of the screening, including some promising candidates suitable for further development and potential use in large-scale LH_2 liquefaction.

Author: EISENHUT, Sebastian

Co-author: HABERSTROH, Christoph

Presenter: EISENHUT, Sebastian

Session Classification: C2Po1D - Ortho-Parahydrogen Conversion