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P3.166 Investigation of influence factors for oxidation reaction of trace H₂ and CH₄.

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There are various gas components in the exhaust gas of the D-T fusion reaction. All of the hydrogen isotopes are recovered and reused as fuel, and the remaining components are released to the environment. Before releasing to the environment, all substances containing trace amounts of Q₂ and Q (such as CH₄) must be recovered. An oxidation / adsorption process can be used for this purpose. By adding O₂ to the feed gas, the Q component is converted into Q₂O by the oxidation reaction, and the generated H₂O is removed by the adsorbent.

In this study, the removal efficiency of Q₂ and CQ₄ by oxidation reaction was investigated. H₂ and CH₄ were used as feed gas and Pt was used as reaction catalyst. The removal efficiencies of H₂ and CH₄ were measured by varying the reaction temperature, feed flow rate and concentration. And the effect of various impurities on the oxidation reaction was also investigated.

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