

**Analysis of Experiments for Vertical In-Tube Steam  
Condensation with Noncondensable Gases  
using the modified RELAP5/MOD3.2 code**

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**Abstract**

The standard RELAP5/MOD3.2 code was modified using the non-iterative modeling, which is developed to simulate steam condensation in the presence of noncondensable gases in a vertical tube. The modified RELAP5/MOD3.2 code was used to simulate two kinds of vertical in-tube experiments involving the condensation phenomenon in the presence of noncondensable gases. The modeling capabilities of the modified RELAP5/MOD3.2 code as well as the standard code for the condensation in the presence of noncondensable gases are assessed using two PCCS condensation experiments and four reflux condensation experiments. The modified RELAP5/MOD3.2 code gives good prediction over the data of both PCCS condensation and reflux condensation experiments.