Dynamic Modeling of Cold box in Natural Gas Liquefaction Process

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Natural gas liquefaction process using mixed and/or cascade refrigerant is popular in onshore LNG (liquefied natural gas) plant. The dynamic modeling of cold box which is core equipment in LNG plant enabling to liquefy natural gas is crucial in order to develop or improve a liquefaction process concerning operability and controllability. A decomposition methodology for dynamic modeling of cold box in the case of lack of internal design data at early design stage is presented. The proposed methodology is validated through the industrial application of natural gas liquefaction process and expected to be extensively applied to the various process designs which require dynamic simulation of cold box unit.