

Abstract Submitted  
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**Simulating nEXO Xenon Plant With AspenTech Suite<sup>1</sup>** ADAM TIDBALL, Rensselaer Polytechnic Institute, NEXO COLLABORATION — The nEXO experiment will use 5 tons of liquid Xe enriched to 90% in the double beta emitting isotope 136 in a Time Projection Chamber (TPC) to search for neutrinoless double-beta ( $0\nu\beta\beta$ ) decay. To achieve the chemical purity necessary in the TPC, the xenon will be continuously passed through a high temperature getter in the gas phase at a rate of 350 SLPM. We describe a simulation of the nEXO Xe plant created using the AspenTech software suite for steady state and dynamic processes, including changes in the flow rate and other transient events. The model was validated by simulating the Xe plant for the predecessor to nEXO, EXO-200, where the model is compared with experimental data. The Xe plant simulations for nEXO allow modeling of alternatives for specific components such that the stability and response to off-normal upsets can be optimized. As an example of this, two different evaporation/liquefaction schemes will be presented, with and without a counter flow heat exchanger, demonstrating the capability of using this model to design the full Xe plant for nEXO.

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