

Accepted Manuscript

A Methodology to Reduce the Computational Cost of Transient Multiphysics Simulations for Waste Vitrification

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PII: S0098-1354(18)30235-7
DOI: [10.1016/j.compchemeng.2018.03.027](https://doi.org/10.1016/j.compchemeng.2018.03.027)
Reference: CACE 6066



To appear in: *Computers and Chemical Engineering*

Received date: 11 September 2017
Revised date: 24 March 2018
Accepted date: 28 March 2018

Please cite this article as: Alexander W. Abboud , Donna Post Guillen , A Methodology to Reduce the Computational Cost of Transient Multiphysics Simulations for Waste Vitrification, *Computers and Chemical Engineering* (2018), doi: [10.1016/j.compchemeng.2018.03.027](https://doi.org/10.1016/j.compchemeng.2018.03.027)

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Highlights

- Calibrated CFD model provides reasonable fidelity while reducing computation time
- Bubbling is replaced by momentum source terms to approximate forced convection
- Void zones in the electrical field compensate for the removal of bubbles
- Speed up of radiation solver through reduced update frequency and quadrature
- A simple polynomial fit captures the waste-to-glass reactions in the cold cap

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