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A note on an extended clarifier-thickener model with singular source and sink terms.

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Summary: A one-dimensional clarifier-thickener (CT) model, which includes a singular feed source, can be expressed as a conservation law with a flux that is discontinuous with respect to the spatial variable. The CT model is extended herein by a singular sink through which material is extracted. The sink gives rise to a new non-conservative transport term. The paper summarizes a recent well-posedness analysis and presents a numerical method for the extended model. A numerical example is presented.

MSC:

35L65 Hyperbolic conservation laws

76T20 Suspensions

35R05 PDEs with low regular coefficients and/or low regular data

Keywords:

non-conservative transport term; well-posedness