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NUMERICAL MODELING OF THE MOTION OF PARTICLES IN A BLOOD VESSEL: IMPLICATIONS FOR TARGETED DRUG DELIVERY

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ABSTRACT In this paper, we describe a numerical model for the *ab initio* evaluation of particulate-laden flow in a vessel. We consider the multiphase flow problem that simulates blood flow in a vessel in the context of drug delivery. The blood is considered non-Newtonian and the red blood cells are coarse grained by solid spheres in the model. By carefully matching the viscosities of real blood with that of the model fluid, we describe the rheology. The predicted flow profile shows excellent comparison with a Casson profile. This lends credibility to the numerical modeling. This study is useful for describing, in general, multiphase particulate laden flows.