Table 1: Summary of mass-momentum consistent advection methods for incompressible flows of immiscible fluids

	Rudman (IJNMF 1998)	Bussmann et al. (ASME 2002)	Raessi & Pitsch (CAF 2012)	Ghods & Herrmann (Physica Scripta 2013)	LeChenadec & Pitsch (JCP 2013)	Owkes & Desjardins (JCP 2017)	Vaudor et al. (CAF 2017)	Patel & Natarajan (JCP 2017)
Basic Configuration	2D uniform Cartesian, staggered variables	3D hexahedral unstructured, collocated variables	2D uniform Cartesian, staggered variables	3D hexahedral unstructured, collocated variables	3D uniform Cartesian, staggered variables	3D uniform Cartesian, staggered variables	3D uniform Cartesian, staggered variables	3D polygonal unstructured, staggered variables
Interface Representation	VOF, algebraic reconstruction	VOF, PLIC reconstruction	Level-Set	Level-Set	VOF, PLIC reconstruction	VOF, PLIC reconstruction	Coupled LS-VOF	VOF, algebraic reconstruction
Flux Computation	split, algebraic Flux-Corrected Transport	unsplit, geometric Eulerian	uni-dimensional LS derived fluxes	multi-dimensional LS derived fluxes	unsplit, geometric semi-Lagrangian (remap)	unsplit, geometric semi-Lagrangian	split, geometric Eulerian	unsplit, algebraic Cubic Upwind Interpolation
Diffusion Operator	explicit, continuum treatment	NONE	implicit, continuum treatment	not explicitly specified	Ghost-Fluid Method, harmonic mean	implicit, continuum treatment	semi-implicit, sharp-interface treatment	not explicitly specified
Surface Tension	Continuum Surface-Force model	NONE	Ghost-Fluid Method	CSF model, least-squares based gradient reconstruction	Ghost-Fluid Method, well-balanced	Continuum Surface Force model, well-balanced	Ghost-Fluid Method, well-balanced	Continuum Surface Force model, well-balanced
Curvature Estimation	convoluted (smoothed) VOF field	NONE	Level Set based spectrally refined interface method	Level Set	convoluted (smoothed) VOF field	hybrid mesh-decoupled height functions	Level-Set	convoluted (smoothed) VOF field
Pressure-Poisson Solver	multigrid preconditioner, Gauss-Seidel	not explicitly specified	multigrid preconditioner, iterative Krylov	not explicitly specified	not explicitly specified	not explicitly specified	multigrid preconditioner, Conjugate Gradient	SAAMG-preconditioned GMRES
Test Cases	rising bubble, bursting bubble	convection of high-density droplet, dam-break	convection of high-density droplet, dam-break, droplet oscillation, bursting bubble, liquid sheet breakup	convection of high-density droplet, capillary wave, dam-break	convection of high-density droplet, capillary wave, dam-break, atomization	rising bubble, electrohydrodynamic atomization	convection of high-density droplet, droplet oscillation, liquid sheet breakup, atomization	convection of high-density droplet, translating droplet, droplet splashing on liquid film, rising bubble, dam-break, RT & KH instabilities