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We study imploding Richtmyer-Meshkov instability to understand the effect of the numerical flow model on late time mixing dynamics, in particular sharp interfaces vs. mixed cell pressure-temperature equilibrium. For early times the models behave similarly, but show completely different late time mixing structures. Mixed cell treatments are dominated by a few fully mixed well defined vortices, while sharp interface treatments show fragmented materials with large temperature spikes and a many fine scale vortices. (Received August 21, 2007)