The mixing at a molecular scale (micromixing) plays an important role on selectivity, yield and quality of final products of a large range of competing fast chemical reactions. In this study, we have compared, by the use of iodide–iodate reaction tests, the micromixing in two reactors, the first one is the standard batch stirred reactor and the second is the torus reactor. Various conditions of agitation and feed locations were used for this study. A comparative analysis of the micromixedness ratio ( $\alpha$ ) in the two reactors was carried out on the basis of the local rate of specific energy dissipation