

ABSTRACT

MULTIPHASE MIXING DEVICE WITH IMPROVED QUENCH INJECTION

A mixing system is disclosed which provides improved multiphase mixing through the use of a novel quench injection means. The mixing system comprises a horizontal collection tray, a mixing chamber positioned below the collection tray, and at least one passageway extending through the collection tray into the mixing chamber. The mixing chamber and the collection tray define a two-phase mixing volume. The passageway conducts fluid from above the collection tray into the mixing chamber. The mixing chamber preferably includes at least one outlet opening for the downward passage of fluid. In particular, mixing of quench fluid is significantly improved when quench is introduced into a region above the collection tray and where (i) lateral velocities of the process fluids are low, (ii) sufficient volume is available for the quench fluid to mix with the process fluids, and (iii) quench injection occurs opposite the prevailing direction of process fluid flow.+

Figure 1