It is well-known that ergodic unital *-endomorphisms acting on a factor of type $I_\infty$ correspond to essential irreducible representations of Cuntz algebras, and that shift-type unital *-endomorphisms correspond to certain irreducible representations of UHF algebras. More generally, it was shown by W. Arveson that continuous semigroups of unital *-endomorphisms correspond to essential irreducible representations of a continuous analogue of the Cuntz algebras, the spectral $C^*$-algebra. Our purpose in this talk is to discuss a correspondence between pure $E_0$-semigroups and certain irreducible representations of a continuous analogue of UHF algebras. (Received August 12, 2006)