Embeddability of matrices into real and positive semigroups

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It is a well-known problem whether a Markov matrix is embeddable into a Markov semigroup, see the recent survey [1]. We consider a similar problem: Given a (finite or infinite) real/positive matrix T, is it embeddable into a real/positive C_0-semigroup, i. e., is there a real/positive semigroup $(T(t))_{t\geq 0}$ such that $T(1) = T$? We will give necessary and sufficient conditions for embeddability.

[1] M. Baake and J. Sumner, *Notes on Markov embedding*, Lineare Algebra Appl. 594 (2020).