We consider two semirings motivated by the study of positive systems in control theory and consider their basic factorization properties. The first is the semiring \( \mathbb{R}^+[X] \) of polynomials with nonnegative real coefficients. The second is a semiring of algebraic integers having the form \( \mathbb{N}_0[\tau] = \{x+y\tau \mid x, y \text{ are nonnegative integers}\} \) for an appropriately chosen real quadratic integer \( \tau \). In each case, we show that the semiring has full infinite elasticity and that the \( \Delta \)-set is \( \{1, 2, 3, \ldots\} \). The proof in the latter case uses results of Hans Rademacher on the distribution of primes in quadratic extensions which may be of independent interest. (Received August 31, 2009)