Counterexamples for Cohen-Macaulayness of Lattice Ideals.

Let $\mathcal{L} \subset \mathbb{Z}^n$ be a lattice, $I$ its corresponding lattice ideal, and $J$ the toric ideal arising from the saturation of $\mathcal{L}$. Despite the close relation between $I$ and $J$, we produce infinitely many examples, in every codimension, of pairs $I, J$ where one of these ideals is Cohen–Macaulay but the other is not. (Received September 16, 2019)