

Let M be a complete, noncompact constant mean curvature hypersurface of *finite index* in \mathbb{R}^{n+1} . We show that if either M has zero volume entropy, or *zero total curvature entropy* and $n \leq 5$, or has bounded curvature and is properly embedded, then M is minimal. We obtain similar results in more general ambient manifolds. Moreover the article contains some results of independent interest, about the volume entropy *and the bottom of the essential spectrum*.