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*Huneke-Wiegand Conjecture for complete intersection numerical semigroup rings.*

If  $R$  is a one-dimensional integrally closed local domain and  $M$  is a finitely generated torsion-free  $R$ -module, then  $M$  is free if and only if  $M \otimes_R \text{Hom}(M, R)$  is torsion-free. C. Huneke and R. Wiegand have conjectured that this property holds for all one-dimensional Gorenstein domains.

**Conjecture** *Let  $R$  be a one-dimensional Gorenstein domain and let  $M \neq 0$  be a finitely generated  $R$ -module, which is not projective. Then  $M \otimes_R \text{Hom}_R(M, R)$  has a non-trivial torsion submodule.*

We show that if  $\Gamma$  is a free numerical semigroup, then monomial ideals of the semigroup ring  $k[\Gamma]$  satisfy the Huneke-Wiegand Conjecture. We also show that if  $k[\Gamma]$  is complete intersection, then two-generated monomial ideals of  $\Gamma$  satisfy the Huneke-Wiegand Conjecture. In order to prove this, we make extensive use of the concept of gluing.

First we prove that extensions of relative ideals behave well with respect to gluing. We also show that for every complete intersection numerical semigroup  $\Gamma$  and every  $s$  in  $\mathbb{N} \setminus \Gamma$  there is an arithmetic sequence  $(x, x + s, x + 2s)$  in  $\Gamma$  that does not factor as the sum of two shorter arithmetic sequences in  $\Gamma$ . (Received September 18, 2012)