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Michael Filaseta and **Carrie E Finch*** (cfinch@math.sc.edu), University of South Carolina, Department of Mathematics, Columbia, SC 29208, and **Mark R Kozek**. *Sierpinski numbers with at least two distinct prime divisors.*

A Sierpinski number is a positive odd integer k with the property that $k \cdot 2^n + 1$ is composite for any natural number n . Chen showed that if r is an odd number or twice an odd number relatively prime to 3, then there are infinitely many positive odd integers k such that k^r is a Sierpinski number, and conjectured that this is true for any r . We prove his conjecture by demonstrating a method for constructing Sierpinski numbers of the form k^{4r} such that $k^{4r} \cdot 2^n + 1$ has at least two distinct prime divisors for all n . (Received September 26, 2005)