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The additivity of crossing numbers over a composition of links has been an open problem for over one hundred years. It has been proved that the crossing number over alternating links is additive independently in 1987 by Louis Kauffman, Kunio Murasugi, and Morwen Thistlethwaite. Further, Yuanan Diao and Hermann Gruber independently proved that the crossing number is additive over a composition of torus links. In order to investigate the additivity of crossing numbers over a composition of a different class of links, we introduce a tool called the deficiency of a link. When the deficiency is equal to 0, we are able to use a powerful result to prove that the crossing number is additive over a composition of links with deficiency 0. Applying this result, we are able to focus on computing the deficiency of a class of links called Montesinos links, specifically alternating pretzel knots and non-alternating pretzel knots. (Received August 30, 2015)