The ~{311} <136> Recrystallization Texture Component of Non-Oriented Electrical Steels

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The ~{311} <136> texture component frequently appears in the recrystallization texture of non-oriented electrical steels, either in the texture of the finished product or in an intermediate processing state. This paper presents a brief review of a number of features of this component. First, a precise description of the ~{311} <136> component is presented, as this component is identified under different denominations in the technical literature. Second, it is reviewed what conditions may contribute to the development of the ~{311} <136> component. Sur- prisingly, it is noticed that ~{311} <136> orientations are omnipresent in the recrystallization texture of extra and ultra-low carbon steels, but only in rare occasions this component emerges as a dominant component of the macroscopic recrystallization texture. A necessary condition for the appearance of the ~{311} <136> component in the macro-texture is the suppression of nucleation and/or growth of the conventional {111} orientations. Third, the mechanisms of nucleation and growth of ~{311} <136> orientations are discussed in terms of the classical the- ories of oriented nucleation and selective growth. Various elements are listed that may enhance our insight in the origin in the deformed structure and its formation during recrystallization of this remarkable texture component