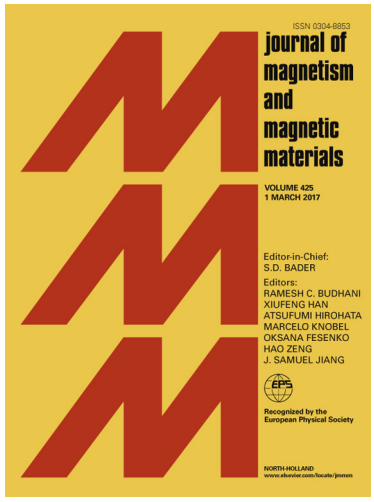

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ABSTRACT

We elucidate here the impact of niobium in ultra-low carbon grain oriented electrical steel (GOES) in terms of microstructure, texture, precipitation and magnetic properties that was processed by twin roll strip casting. Coarse and complex MnS +NbN precipitates, and fine NbN were nucleated at the grain boundaries and in the interior of the grain in the as-cast strip, which contributed to a small degree of grain refinement together with relatively random texture, and AlN precipitation was suppressed during the strip casting process. NbN continuously precipitated during the entire process and exhibited high stability during the reheating cycle, which provided stronger inhibiting force in comparison to AlN precipitates. As a consequence, fine and homogeneous inhibitors were obtained in the primary annealed sheet in the presence of