

# Processing of sintered Nd-Fe-B magnets based on strip cast alloys

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## **Abstract:**

High-performance, Nd-Fe-B based permanent magnets have been thoroughly studied and widely used in many applications, including electric motors and windmill generators. In order to obtain optimum magnetic properties, the starting materials and powder metallurgy processing route must be optimized in order to achieve the adequate microstructure. For starting materials, alloys produced by strip-casting technique show advantages on eliminating free-iron precipitation during cooling. However, the small grain size achieved by this rapid-cooling process can be a concern to obtain monocrystalline particles after milling, critical for texture development in the magnet. In this work, the influence of hydrogen decrepitation and milling parameters were investigated to achieve a high degree of alignment in green and sintered samples. Different sintering temperatures were also investigated aiming a high BHmax. Texture was quantified by magnetic characterization and by magnetic domain observation, and microstructure development was evaluated by electron microscopy.