

# Structure and magnetic properties of cold-deformed Mn-Al-(C)

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The magnetic Mn-Al system has attracted continuous interests for more than half century. [1] The research interests increase recently with increasing cost of rare earth resources and increasing demand for low cost rare-earth free magnets.[2] A number of techniques, including elemental modification, structural modification, etc., have been employed to improve the magnetic performance of the Mn-Al-based magnets. [3, 4, 5] The deformation processes, hot or cold, have been proved to be effective in modifying the structure and thus a better magnetic performance. [3, 5, 6] In this work, we prepared the Mn-Al-(C) alloys by induction melting method and subsequent optimized annealing processes. A modified cold deformation process was employed to modify the structure and improve the magnetic performance of the alloys. The structural transformations originated from the heat-treatment and cold deformation were studied systematically by using XRD, SEM, and TEM. The effect of the structure on the magnetic properties of the Mn-Al-(C) magnet was investigated.

## References

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