

# **Influence of reduced graphene oxide on the fabrication of Neodymium-Iron-Boron magnets by mechanical milling**

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The aim of this work was to prepare sintered Nd-Fe-B permanent magnets, following the traditional powder metallurgy route, using reduced graphene oxide (rGO) in the mechanical milling process. Also, it was to study the effect of rGO addition on the magnetic properties of the as-prepared materials. rGO acts as a lubricant and effective milling medium, preventing agglomeration, welding of the particles, and oxidation of the material. The structure and morphology of the composite powders were characterized by X-ray diffraction, Raman spectroscopy, and transmission electron microscopy. The magnetic properties of sintered magnets were characterized using a permeameter. The highest values of remanence (Br) and intrinsic coercivity (iHc) values were obtained for the sintered magnet using 0.02 wt% rGO addition, Br = 1.1 T, and iHc = 764.0 kAm<sup>-1</sup>