

DSC analysis of Nd-Fe-B ribbons prepared by melt-spinning method with diverse compositions and cooling rates

ABSTRACT

Nd_{9.4}Pr_{0.6}Fe_{77.5-x}B₆Co₆Ga_{0.5}Ti_xC_x(x= 0, 1.5, 3, 4.5, 6) Melt-spun ribbons have been prepared at 15, 20 and 25 m/s quenching wheel speeds and were examined by using differential scanning calorimetry (DSC). It is remarkable that peak intensity increases with increasing solidification rate or the higher the Ti and C content of the structure. In both cases, the increased amounts of amorphous phase indicate their strongest peaks in the diagram. Another point related to the crystallization temperature of the ribbons in the presence of Ti and C, which will be discussed in detail in this manuscript.

Keyword: Differential scanning calorimetry (DSC); Nd-Fe-B; Rapid solidification