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非結晶性 $Fe_{40}Ni_{38}Mo_4B_{18}$의 Mössbauer 分光學的 硏究

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Mössbauer Study of Amorphous $Fe_{40}Ni_{38}Mo_4B_{18}$

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The amorphous state of ferromagnetic $Fe_{40}Ni_{38}Mo_4B_{18}$ (METGLAS ®2826 MB) has been studied by Mössbauer spectroscopy from 82 to 600K. In the amorphous state at 82K, the Mössbauer spectrum exhibits an essentially symmetric hyperfine − field distribution with a half-width of 94 kOe. The average hyperfine field $H_{hf}(T)$ shows a temperature dependence of $[H_{hf}(T) - H_{hf}(O)]/H_{hf}(O) = -0.39(T/T_C)^{3/2} - 0.14(T/T_C)^{5/2}$ for $T/T_C < 0.7$, indicative of spin − wave excitation. The quadrupole splitting just above T_C is 0.49 mm/s, whereas the average quadrupole shift below Tc is zero. The Curie temperature is determined to be $T_C = 580K$ for a heating rate of 100 K/h.