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## Surface and bulk properties of thick amorphous iron alloys

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Abstract

The microstructure and mechanical properties, such as hardness and abrasive resistance, for the amorphous  $\text{Fe}_{60}\text{Co}_5\text{Zr}_8\text{Mo}_5\text{W}_2\text{B}_{20}$  samples in the form of plate and rod have been investigated. We have stated that the samples obtained by a suction-casting method were fully amorphous. Moreover, from Mössbauer spectroscopy studies we have found that the amorphous rod is more homogenous than the plate. It is due to different quenching rates in the layers located near the surface and inside the samples. Hardness on the side surface of the plate or rod are almost the same in different measured points. However, hardness in the cross-section of the rod exhibits the maximum value near its surface. It is worth noticing that hardness of the amorphous samples is about twofold larger than for crystalline ingots. Wear resistance of the outer layer is smaller than for layers located near the centre of the sample.



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