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Entitled Influence of induction chemical-thermal treatment on the mechanical properties of high-speed steel grade HSS

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In the modern world, none of the parts produced from the factory is complete without processing tool steel. Tool steel has a number of positive qualities, such as greater flexibility, high redness, resistance to shock loads, and has greater wear resistance compared to other steels. In this paper, it is proposed to increase the surface layer of steel by chemical-thermal treatment (CTT) using an induction heating system (IHS) in a solid carburetor. The cementation process is affordable and relatively inexpensive. To increase the productivity of the carbon diffusion process, (IHS) is used. Improved properties as a result of CTO allows you to use alloys of simpler compositions, and the use of IHS helps to reduce the time to produce the product at times, all this helps to reduce the cost of production and costs.

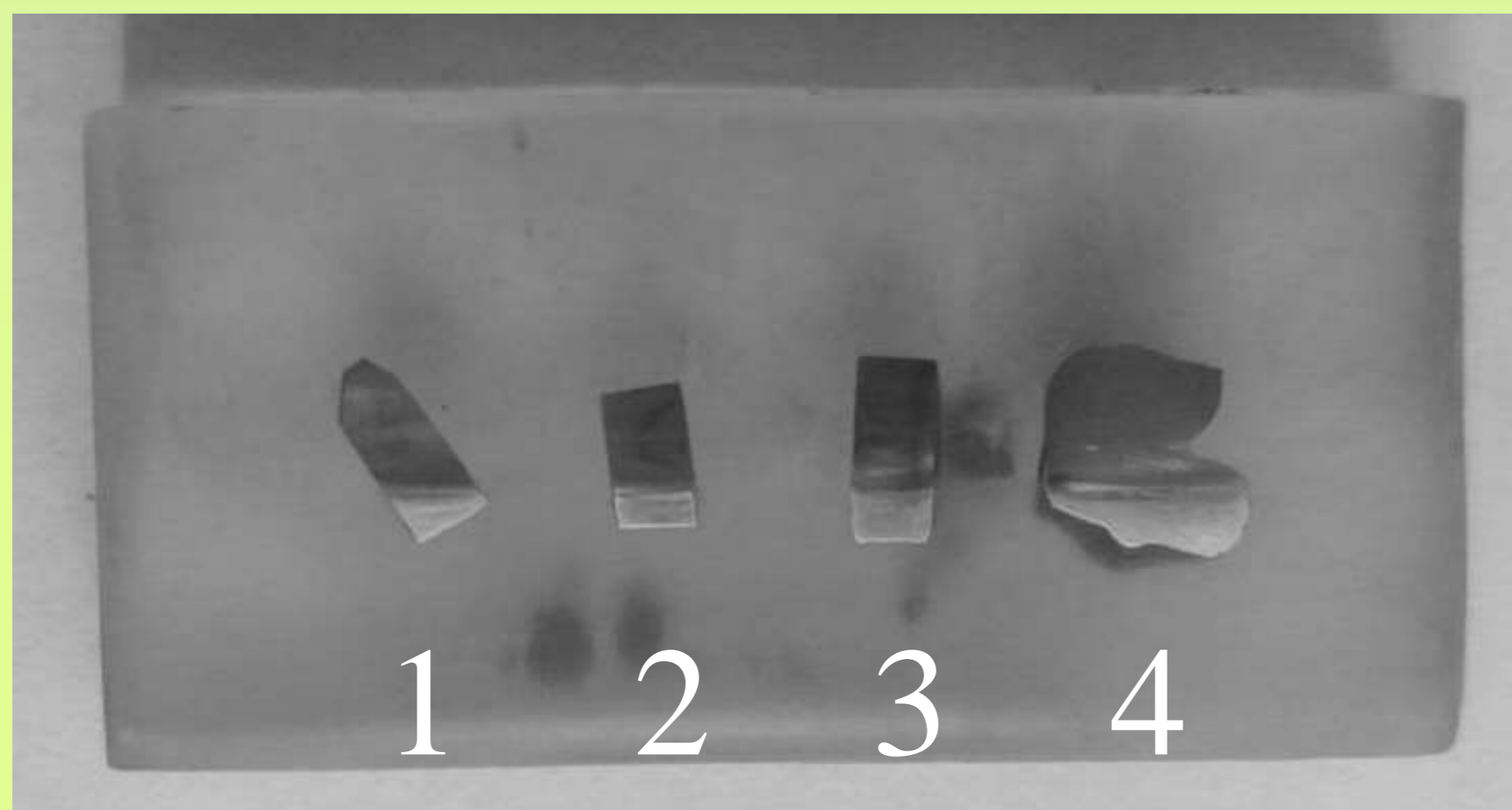


Fig. 1. Microsection of samples after cementation in an inductor

When processing four samples in IHS, different current values were used, such as the current on the inductor and the voltage in the range of 90-120 V, respectively, for each sample, all this is necessary in order to determine the best result: 1 - the sample has an average value of 61 HRC; 2 - voltage value equal to 100 and the best indicator is 73 HRC; 3 - got a similar hardness with sample 1; 4 - the microhardness of the diffusion layer was oversaturated with carbon, which led to carbonization

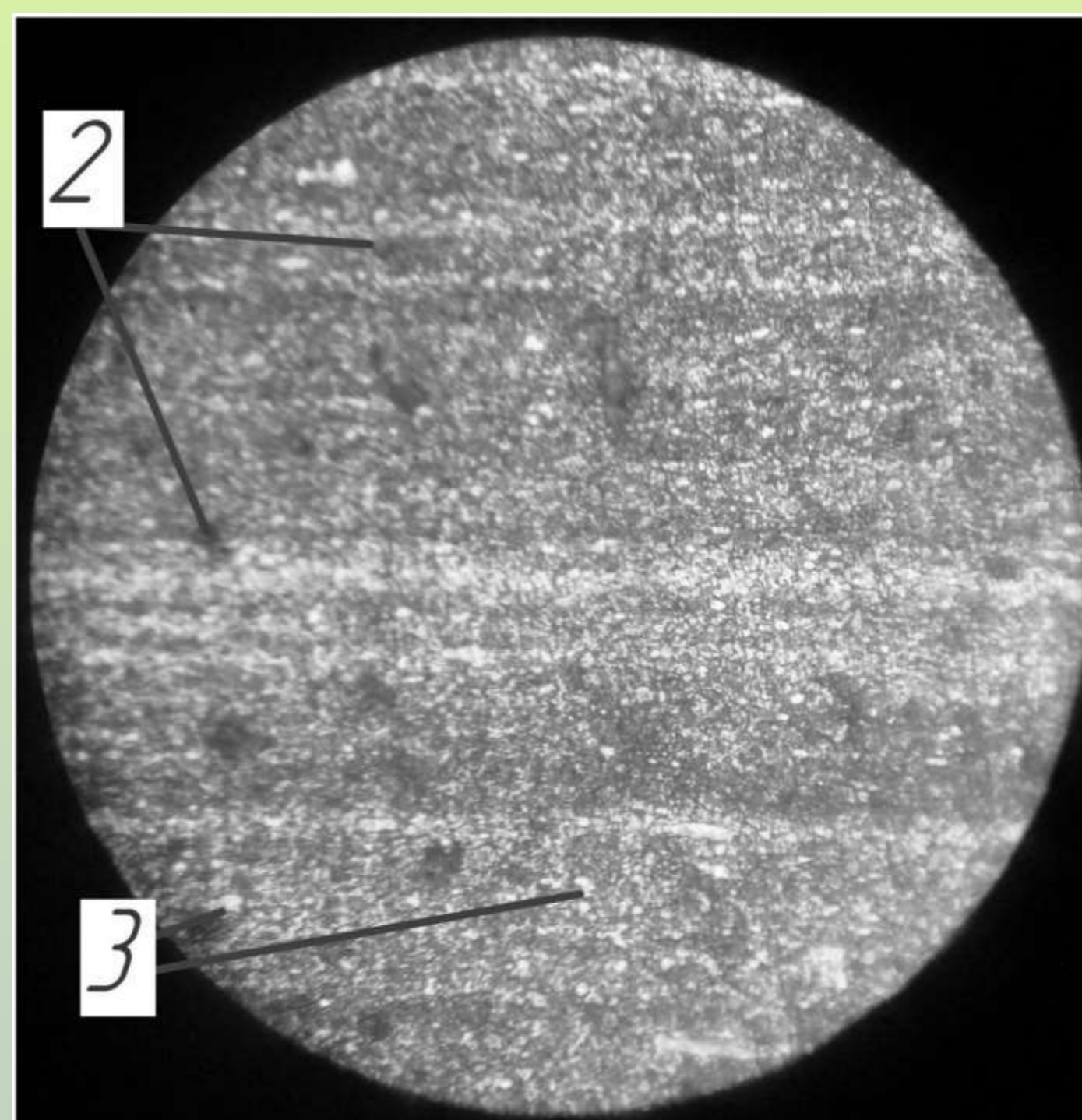
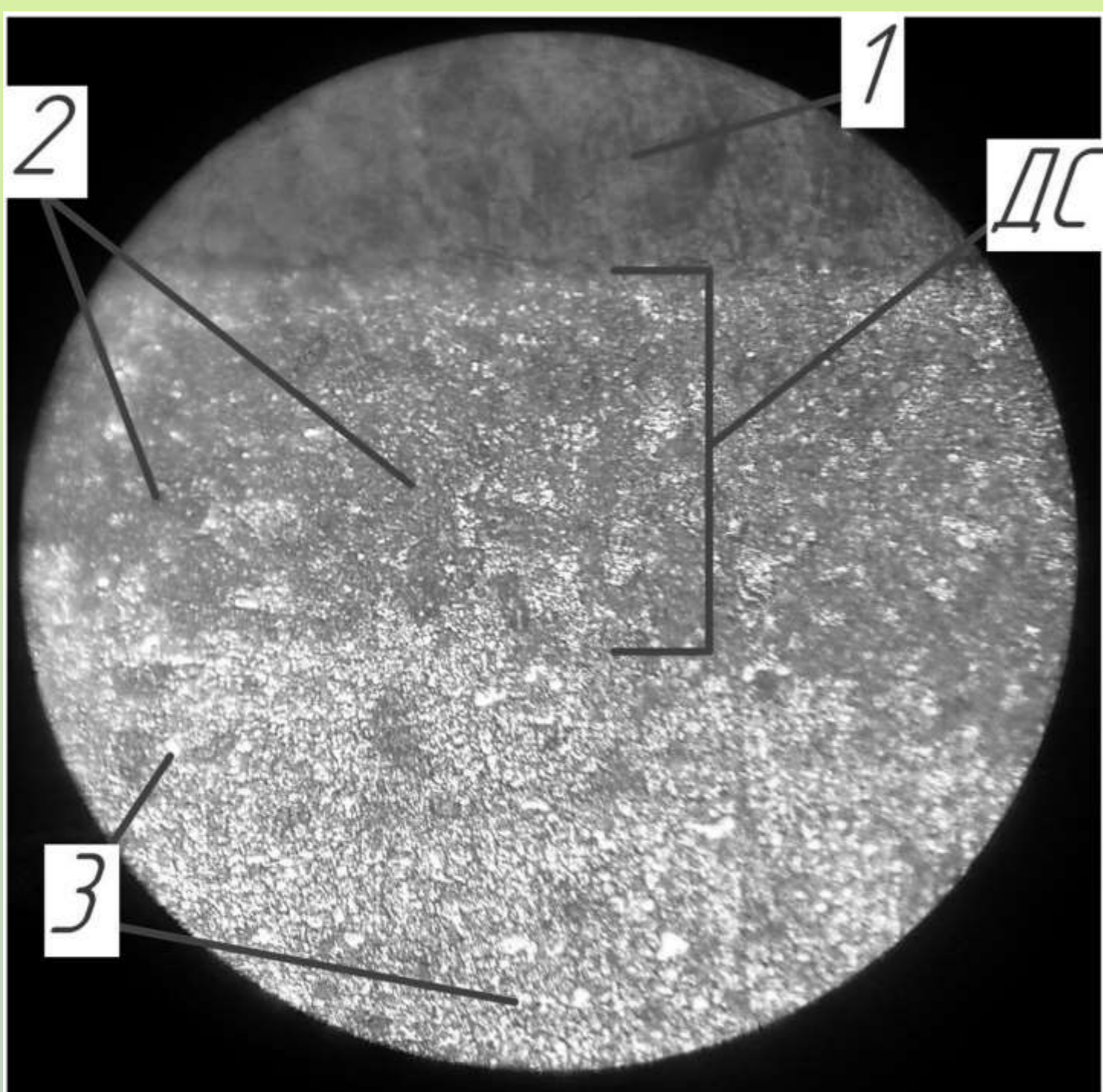


Fig. 2. Microstructure of sample 2. 1 - epoxy resin, 2 - martensite, 3 - cementite, DL - diffused layer