



Effect receiving modes, and heat treatment on  
the structure and properties of the magnetic  
powder of strontium hexaferrite  $\text{SrFe}_{12}\text{O}_{19}$   
obtained by crystallization of the oxide glass  
with additives of Fe-B

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# Objective

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The aim of this study was to investigate the magnetic properties of hexaferrite powders  $\text{SrFe}_{12}\text{O}_{19}$  strontium obtained by crystallization of the oxide glass, with the addition of Fe-B.

To achieve this aim the following tasks:

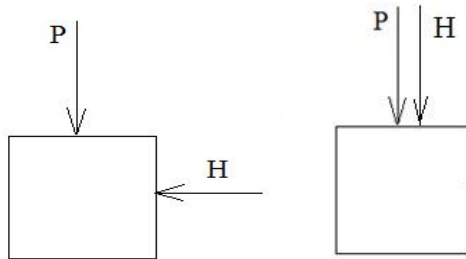
- Preparation of the alloy samples of strontium hexaferrite composition of 95%  $\text{SrFe}_{12}\text{O}_{19}$  and 5% Fe-B.
  - Testing methods of heat treatment;
- The study of the magnetic properties of the samples after grinding;

# Experimental technique



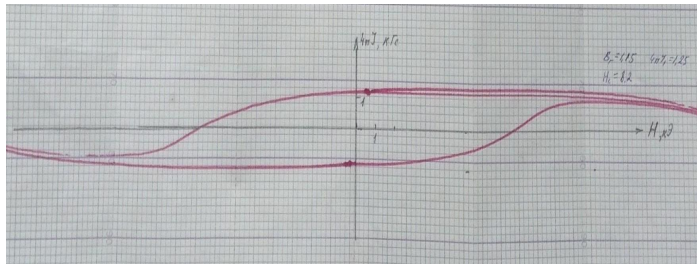
## Comminution

SAND planetary mill was used to prepare nanocrystalline powders of strontium hexaferrite with the ability to use up to 4 sealable drums.



## Pressing

Was conducted on "Hydraulic press" install at 60 kg / cm<sup>2</sup> (pre-powder in the mold magnetized in a magnetic field).

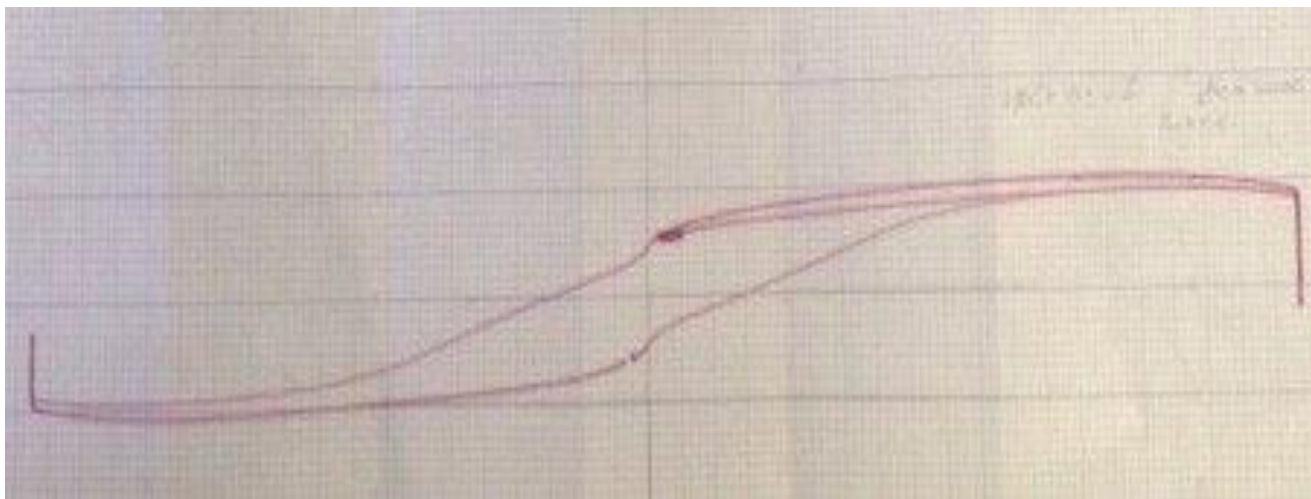
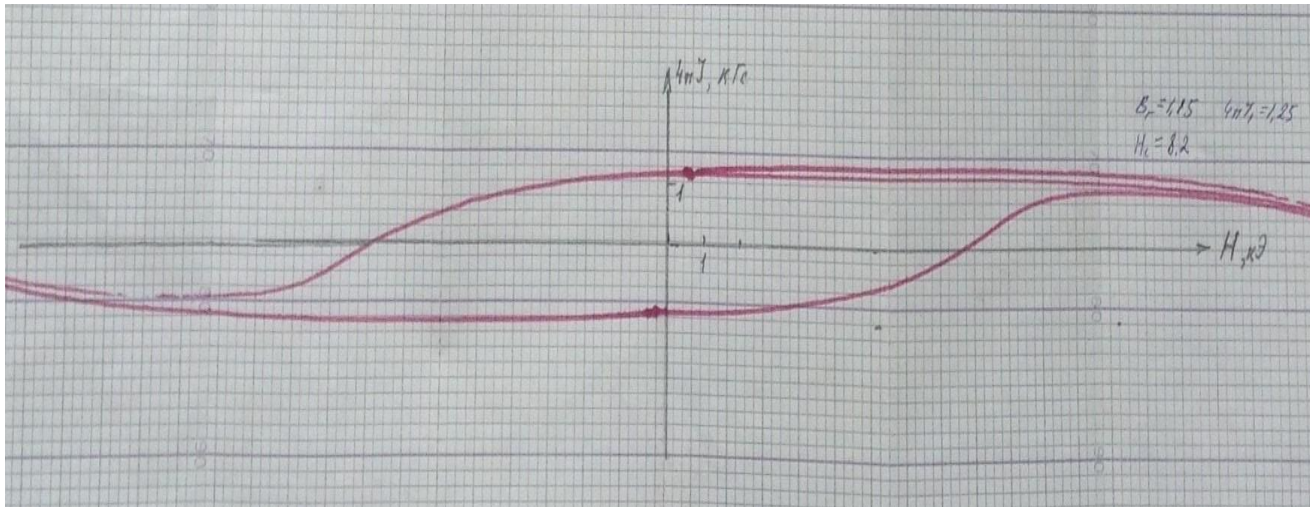


## Measurements of the magnetic properties

Measurement of the hysteresis properties of the samples is carried out at room temperature for gisterezisgrafe using microwebermeter F192.

# The hysteresis loop of strontium hexaferrite and strontium hexaferrite with additions of iron boride.

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# Conclusions.

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- Oxide glass crystallization method obtained submicrocrystalline rapidly quenched alloys and amorphous structure.
- It is shown that vitrified grinding in distilled water, compared to grinding in toluene resulted in a slight decrease in the coercive force (from 9 to kilooersted 8,2 kilooersted) and increase residual induction (from 0,75 kilogauss to 1,25 kilogauss, respectively).
- After annealing at presszagotovki 1050 C at 30 min following magnetic properties obtained

Thank you for attention!