

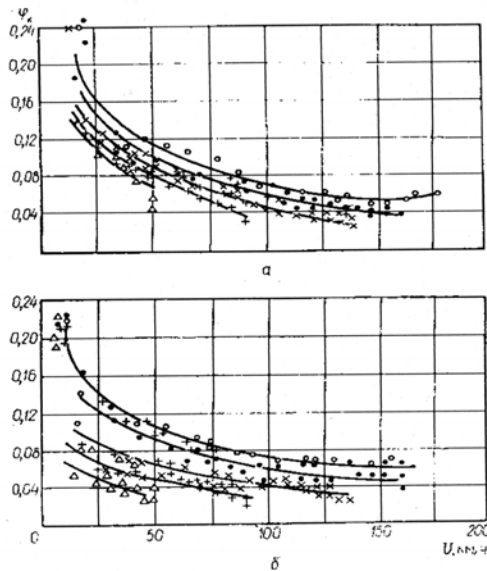
Partially graphitized iron for braking shoes

Braking shoes of iron with cementite (5-15%), graphite, pearlite and ferrophosphides in structure have a high durability (without of damaging of wheels surface) and with sufficient galvanic effectiveness. Durability of these braking shoes is 1.5...3 times more than braking shoes of cast iron with phosphorus as a main alloying element.



Braking shoes

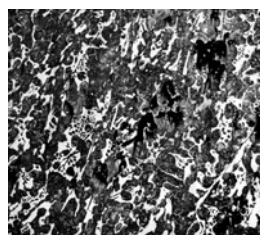
Partially graphitizing iron as a material for braking shoes is used at manufacturing of tram and locomotive braking shoes. The quantity of such braking shoes is several million pieces. Durable of braking shoes in maneuvering locomotives increased on 2-3 times, in main line locomotives - on 1.5-2 times.



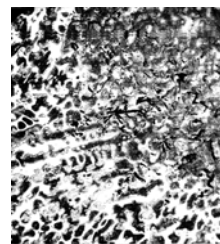
Friction coefficient of braking shoes - initial rate of braking of braking shoes relationship: (a) partially graphitizing iron; (b) alloying cast iron

Braking shoes of partially graphitizing iron can be manufactured without heat treatment (by means of control of chemical composition of iron with silicon, phosphorus, manganese, chromium and carbon) and by means of casting of braking shoes of white (or half) non alloying iron with next heat treatment.

The first variant of technology use at iron melting in electric furnaces, the second - both in electric furnace and in cupolas.



a)



б)

Microstructure of partially graphitizing iron: (a) iron after heat treatment; (b) cast iron.