

An invention relates to the field of ferrous metallurgy, in particular to a method for melting steel in the open-hearth furnace and structure of open-hearth furnace. In the method for melting steel in the open-hearth furnace on different sides of transverse axis thereof reduction zones of overheating are created by delivery of natural gas and air through plasmotrons on interface of metal melt and slag. In the process of operation of metal charge charging the working gas is supplied with volume ratio of oxygen and natural gas of  $\alpha = 0.2-0.35$ , after filing the half of cast iron -  $\alpha = 0.35-0.5$  and, at the content of carbon in the melt less than required for obtaining prescribed steel quality,  $\alpha$  is reduced to 0.35 and increased the amount of pyrocarbon, which is emitted from plasma, and in excess of carbon in the steel melt the ratio of  $\alpha$  is increased between 0.5 and 0.8. In the lower part of working space of open-hearth furnace, in the cutting of rear wall, at an angle of  $20-40^\circ$  to the surface of bath, symmetrically relative to transverse axis of furnace, there are disposed plasmotrons, discharge jets of which are placed on calculated interface of steel melt and slag, and projection of axes of plasmotrons in plane and longitudinal axis of furnace form between them an angle of  $20-80^\circ$ . The invention provides activation of the process of heat and mass exchange between working space and bath of the furnace, increase of luminance of torch of mixture of gases, which are burnt in plasmotrons, reducing duration of melting, reducing material and energy charges thereon and improvement of quality of melt steel.