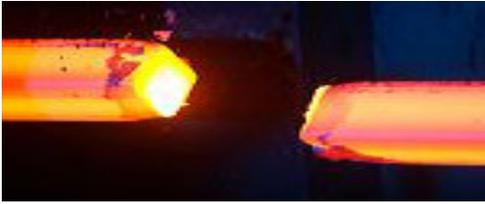


## TECHNOLOGY OF DEOXIDATION AND LADLE TREATMENT FOR HIGH STRENGTH ROD WIRE MANUFACTURE



As a result of liquation processes in the central area of bar the ability of high carbon steel to drawing sufficiently reduced that leads violations of production process of wire manufacture.

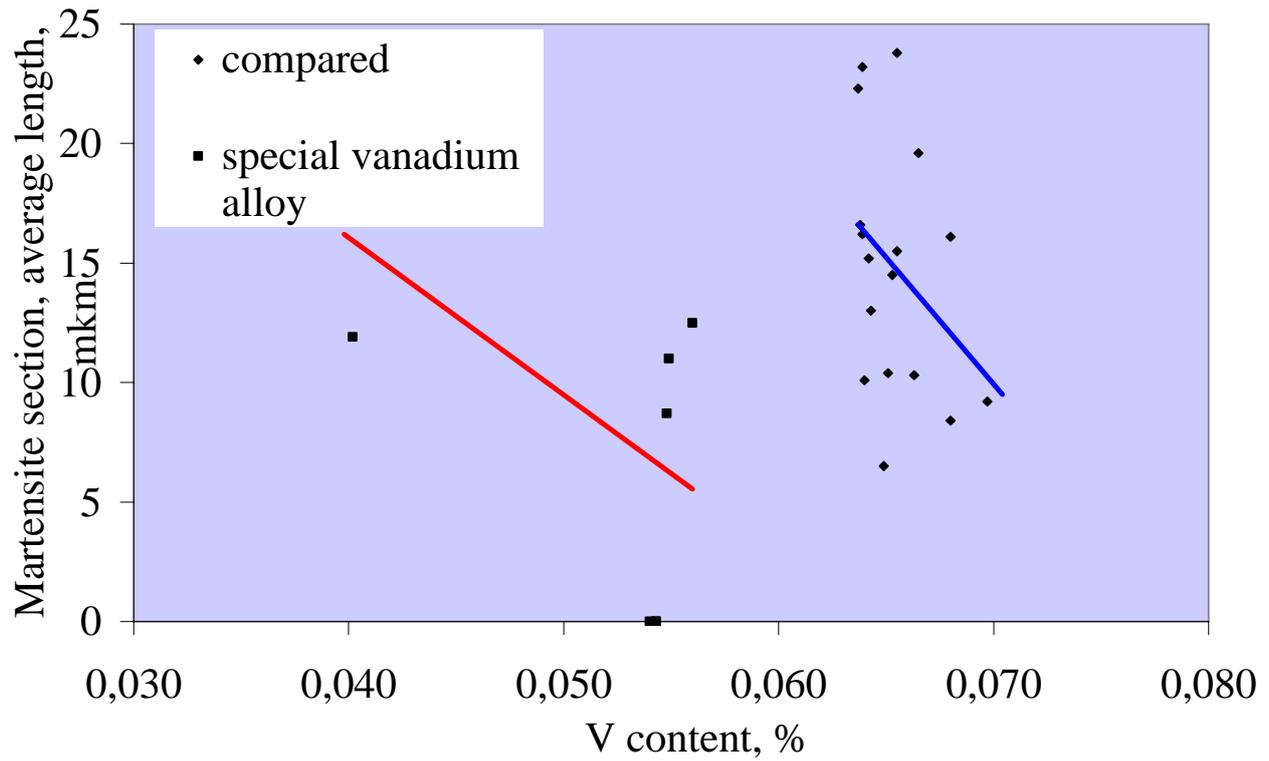
The multifactor analysis for this problem decision aimed on search of possibilities of steel manufacture technology improvement was made.

The measures promoting of rise of volume share of globular crystal area in central part continuous cast and the same diminishment of liquation degree and porosity at casting of high carbon steel grades (degree of carbon liquation made less than 1.10).



For the improvement of mechanical properties of rod wire metal the special vanadium alloy was used that allow us to reduce of vanadium content in steel on 20-40% (in relation to usual target value) at saving of necessary tensile strength 1200-1235 N/mm<sup>2</sup> depending of diameter (11-8 mm).

Researches also testified that some diminishment of tensile strength in rod wire by a diameter 11 mm can be compensated by the change of the its cooling mode. The plastic properties of experimental metal both in rod wire of diameter 8 and 11 mm are a few higher (without the change of the cooling modes) that improves of ability to drawing of rod wire. The got mechanical properties of wire are in good correlation with effect of vanadium content on average amount of martensite in the axial zone of a rod wire.



Vanadium content effect on average length of martensite sections in the middle of rod wire.

The possibility of the use of special vanadium alloy for high carbon steel manufacture  
 It was also shown that the increase of rod wire temperature on coil placer can serve as reserve of increase of tensile strength.

