

Effects of Welding Process on Dissimilar Metals Joints

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ABSTRACT

The paper presents the welding process influence on metallurgical and mechanical modifications from dissimilar metals joints. Copper and carbon steel are the base metals used for the present study. This joining type is advantageous to practice an important non-ferrous metal economy. During welding process some specific problems come out such as:

- cracking in the heat-affected zone of steel;
- formation of the brittle layers in the partially melted zone.
- brittleness of metal in contact with oxygen;
- loss of the energy by conduction effect due to the high thermal conductivity;
- development of the residual stresses and distortions.

Several investigations of the structural changes in the heat-affected zone and modification of the grains size are carried out to gain more insight into the welding influence problem on the metallurgical phenomena. This will normally have an influence on the mechanical properties and working behavior. Technological particularities and modifications of the mechanical characteristics in the copper-carbon steel welded joints are, also, presented in this paper.

References

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