

# MICROSTRUCTURE AND TEMPERATURE FIELD ANALYSIS AT MIG WELDING OF AUSTENITIC STAINLESS STEEL

B.V. Radoiu, M. Bormambet

Ovidius University of Constanta, Maritime, Industrial and Mechanical Faculty, Romania  
124 Mamaia Av., 900527 - Constanta, Romania, Tel. 0241553994  
[melat@univ-ovidius.ro](mailto:melat@univ-ovidius.ro)

## ABSTRACT

*Of all the stainless steels with properties of great importance in engineering and welding are the steels allied with Cr and Cr-Ni. Austenitic steels have decisive advantages such as good toughness and trouble-free welding behavior. The structure of austenitic stainless steels is obtained with additions of nickel, in which the nitrogen as an austenitic element acquires increasing importance in recent years.*

*In this paper, we studied the structure of  $\delta$  ferrite content of austenitic steel welds X6CrNiTi18-10. Macro and microstructure was performed MIG welded sample. The thermal field was analyzed by finite element method. Determination of  $\delta$  ferrite content was based on WRC diagram, with Function Fit method.*

**KEY WORDS:** Stainless steel, WRC diagram, thermal field, finite element.

## REFERENCES

- [1] **Burcă M., Negoïtescu S.**, *Sudarea MIG/MAG*, Editura Sudura, Timișoara, 2004.
- [2] **Marshal P.**, *Austenitic stainless steels microstructure and properties*, London, Elsevier, 1984.
- [3] **Maty B.**, *Introducere în metoda elementelor finite*, Editura Tehnică, București, 1995.
- [4] **Micloși V., Lupescu I.**, *Sudarea prin topire a oțelurilor aliate*, Editura Tehnică, București, 1970.
- [5] <http://www.migweld.de/english/service/welding-stainless-steels/wrc-diagram-for-standard-analysis.html>