

Goal of the project:

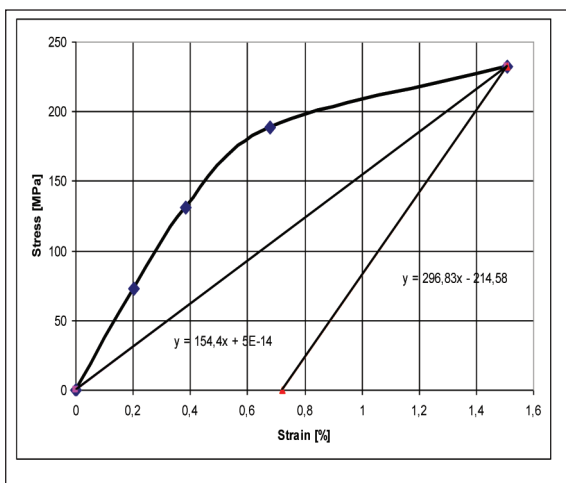
The determination of stress-strain characteristics for type 170AL0/28 MEHST aluminum-steel electrical conductors, designed for high-voltage aerial transportation lines.

Short description of the project:

The project consists of experimental determinations of stress-strain characteristics of aluminum-steel conductors. The conductors are subjected to uniaxial traction. The test specimen's length is 11 m. First, the UTS is determined, then the stress-strain curve is constructed.

Project implemented by:

„Politehnica” University of Timișoara and ICME ECAB S.A. București



Implementation period:

March 2012– March 2013

Main activities:

First, the test specimens must be prepared. They must be cut to size and installed. The UTS is then determined. After validating the conductor's Ultimate Tensile Strength (UTS), a special test is performed (called stress-strain test). The test simulates the

strain accumulated during the life span of the conductor. The results must be evaluated and the stress-strain curve can be constructed. The stress-strain curve can be constructed.

Results:

The results showed excessive deformations under load. Furthermore, although the UTS was bigger than the minimal value presented in the standard, the total strain could not be determined (the elongation was larger than the testing machine's travel). For the same reason, the Young's modulus was smaller than the one prescribed in the normative.

Fields of interest:

Electrical conductor manufacturing and testing, high-voltage transportation lines.

Financed through/by:

ICME ECAB S.A. București.

Research team:

Dr. Eng. Cristian-Sorin Neș (head of project);
Dr. Eng. Anghel Cernescu;
Dr. Eng. Emanoil Linul;
Ph.D. Stud. Lorand Kun;
Ph.D. Stud. Lucian Bogdan.

Research centre:

Research Centre for Processing and Characterization of Advanced Materials

Applicability and transferability of the results:

The tests were performed in order to certify a new product of ICME ECAB. The results are used for the improvement and development of the new product.

Contact information:

E-mail: cristian.nes@mec.upt.ro