P-13-973

INVESTIGATION ON ELECTROFUSION WELD PROPERTIES OF POLYETHYLENE GAS PIPES

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The electrofusion technique is mainly used for welding pipes made from PE, for the water and gas utilities.This technique permits joining, of pre-assembled pipes and fittings, to be carried out with minimum equipment. It also offers a number of practical advantages to the installer. It is easy to use for repairs and where the available space and pipe movement is limited. It is widely acknowledged that, in order to establish a consistent and structurally sound joint, it is necessary to follow a strict preparation procedure. If the appropriate procedures are followed, contamination and disturbance effects that might inhibit the fusion mechanism will be minimised. The paper deals with the investigation on influence of welding time and ambient temperature on quality of electrofusion welded joints of PE-HD gas pipes. Central composite design with two factors has been chosen for planning the experiment. All experiments have been conducted on DN63 PE100 gas pipes. Based on preliminary experiments, welding time has been adjusted in the range from 42 to 85 seconds, and ambient temperature from -4 to 25 oC. Results obtained by measuring the internal pressure were statistically analyzed. Analysis has given the response surface and the regression equation that describes the dependence of internal bursting pressure on the ambient temperature and welding time as well.