

This paper provides a study on mixed-mode fracture mechanics in thin-walled tube which is subjected to tension, shear and torsion loading. This type of loading causes an inclined crack to develop and generate a mixture of normal and shear stresses ahead of a crack tip. The stress state ahead of a crack tip is frequently based on mixed-mode type of interactions which designate the amplitude of the crack tip stresses. The analytical expressions for the stress intensity factors for mixed-mode I + II approach are presented. The Paris law for mixed-modes I + II has been discussed. Mixed-mode fracture mechanics is used with theoretical models to predict the path of crack growth when an inclined crack is subjected to a combination of mode I and mode II deformations. The torque at which crack propagation can be expected has been determined. The numerical calculations have been carried out by using MATLAB code. The results are good and could be useful for companies working with thin-walled circular tubes.