

Method for evaluating operational damage of low and medium-strength steels consists in subjecting specimens without stress concentrators to impact loading, and the influence of damage on their resistance to brittle fracture is quantified by the value of the specimen fracture energy. Wherein the specimens are subjected to impact loading at liquid nitrogen temperature, which enables the elimination of the ductility margin of the steels and the isolation of the embrittling effect of damages scattered throughout the specimen volume as additional stress and strain concentrators.