

ACOUSTIC EMISSION MONITORING OF STEEL SAMPLES WITH ENCREASED K TO EVALUATE THE DEGRADATION OF TOUGHNESS

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Authors: PIETRO NARDONI DIEGO NARDONI MARCO FEROLDI I&T NARDONI INSTITUTE Luca Possenti ATB RIVA CALZONI – BS Mattia Bentoglio ATV LECCO ACOUSTIC EMISSION MONITORING OF STEEL SAMPLES WITH ENCREASED K TO EVALUATE THE DEGRADATION OF TOUGHNESS Authors: PIETRO NARDONI DIEGO NARDONI MARCO FEROLDI I&T NARDONI INSTITUTE Luca Possenti ATB RIVA CALZONI – BS Mattia Bentoglio ATV LECCO The main scope of this research is to evaluate experimentaly the influence of stress concentration originated by planar defects present in the steel samples. The throught thichness height of planar defects in the sample was in the range of 5% to 30% of the thickness of the sample. The bending of the sample under a silent press has been monitored with acoustic emission to observe the elastic reaction of the material and its degradation in terms of elasticity. It has been demonstrated that with a 30% through thickness hight of the planar defect the material lose its original thoghness showing a brittle behaviours. This data has been confirmed by the analisys of faylure of well known accident in the world. Another important data acchieived by the test is that at 80 dB is the value of the starting microcracks. This data a very important in the routine inspection of welds or other components. The study is a good complement for the acceptance criteria established by the code.