

4.1.8. UTILIZATION OF NON-DESTRUCTIVE TESTING METHODS FOR ASSESSMENT OF DAMAGE IN CONSTRUCTION MATERIALS AT EARLY STAGES OF DESTRUCTION

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The report is dedicated to the method of assessment of damage amount in polychrystalline materials at early stages of destruction, before formation of macrocracks. Acoustic and optical methods are used for the purpose of quantification of accumulated microdamage under static loading, low-cyclic and high-cyclic fatigue loading. Method combination makes it possible to detect areas damaged by severe microflows, to measure destruction intensity in these areas and to estimate endurance of materials. SPECTR MET – the portable metallographic complex and the original acoustic unit for measurement of acoustic parameters are used as measuring devices. Results of analyses of metal alloys widely used in engineering industry are given in the report.