

The invention relates to heat power engineering, in particular to methods for determination of state of metal of responsible power equipment and can be used in chemical and oil-gas areas, machine-building, and in scientific-research organizations and plant laboratories. The invention is in fact that to surface of controlled object by means of hermetically fixed cell one applies electrolyte, with inclusion of comparison electrode, by means of ceramic element of cleaning one destructs surface oxide film at given force of pressure of cleaning element, with simultaneous fixation of rate of repassivation of newly formed surface of metal  $V_r$  as tangent of angle of inclination of linear section of dependence of electrode potential  $E$  from time  $\tau$  at initial instant of re-passivation. Level of degradation of structure of thermo-stable steel is determined by non-destructive method at control investigations of object on basis of measurement of value of repassivation rate  $V_r$ , with use of correlation dependence between rate of repassivation of newly formed surface of metal and part of perlite component in micro-structure of steel that is preliminary determined on control element of construction in zones with different stressedly-deformed states. Technical result is in increase of accuracy and productivity of the method.