RESULTS AND DISCUSSION -~

The technology of welding Cr-Mn steels of 18-18 type is similar to the technology of welding of the other austenitic steels. However, the problems can occur with the formation of pores, reduction in strength, toughness and also corrosion resistance if not to follow a proper technology (low power of welding arc, small sizes of molten pool). The content of carbon, silicon and nickel in filler metal should be minimum, as these elements reduce the nitrogen solubility in the weld. In addition, high nickel concentrations predetermine the chemical and structural micro heterogeneity and low corrosion resistance of WJ, caused by it. Using wire with 0.4-0.8 % N and shielding gas, containing nitrogen up to 4 %, it s possible to produce the defect-free WJ. Therefore, the worse are intensively carried out for the development of new, more effective fillers and technologies of welding of high-nitrogen austenitic steels [1-4]. In a solution of electrolyte, the surface of the welded joint can be regarded as equipotential and each part of the joint is assumed to be polarized to the compromise potential of the corrosion system. Since high-nitrogen steels have narrow ranges of passivity in hot solutions of chlorides, it could be expected that additions with higher potentials would promote their contact corrosion.

The results of evaluation of the distribution of alloyed components and corrosion products in the crack tip and the materials of WJ in the close area (Fig.l, Table 1, 2) shows, that WJ in the medium of chlorides have a low corrosion resistance. Moreover, the more non-homogeneous metal has higher rates of corrosion than PM that is an indirect testimony of its high electrochemical heterogeneity. The results of inspection of the fracture samples show that their corrosion in the PM and the HAZ in chloride solutions is inhomogeneous. The corrosion of the weld is, in fact, absent. In the solution of $CuCl_2$, we observe the process of cathodic deposition of copper on the weld. The corrosion rate of WJ is somewhat higher than in the PM [7].

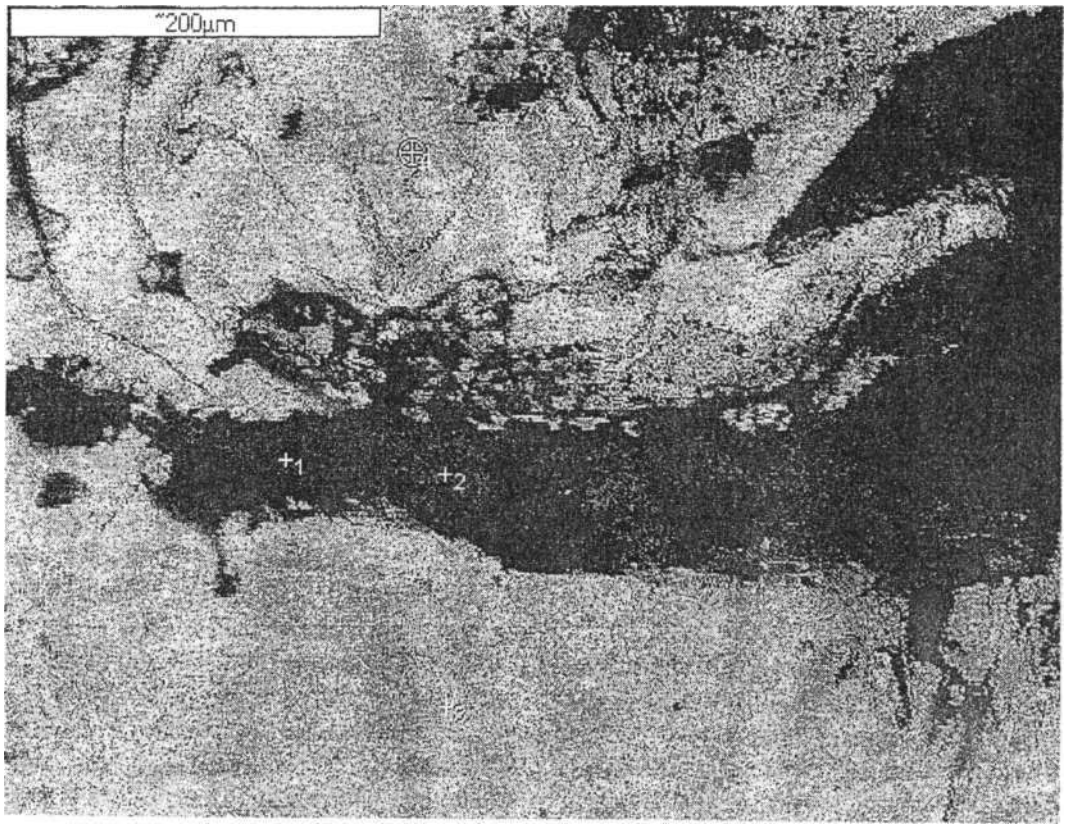

Fig. 1. Crack tip of specimen after investigations of intercrystalline corrosion and points, in which was made quantities chemical analysis of welded joints materials (pp. 3,4) and corrosion products (pp. 1,2).