

Table 1. Chemical composition of the corrosion products in the crack tip

Fig. 1	Elements, %												
	Na	Al	Si			Cl	K	Ca	Cr	Mn	Fe	Ni	Cu
p.1	1,0	1,06	1,47	0,09	0,35	22,11	1,29	17,35	19,31	4,29	30,1:	1,18	0,4
p.2	2,49	3,58	4,44	-0,07	0,23	24,63	1,85	2,26	8,96	3,83	46,12	1,09	0,63

Table 2. Chemical composition of the corrosion products in the welded joining

r Fig. i	Elements, %					
	Si	Cr	Mn	Fe	Ni	Mo
" ~ 3XZ	0,29	20,99	7,96	53,89	.14,17	2,7
p i	0,30	20,59	7,26	55,51	13,87	2,47

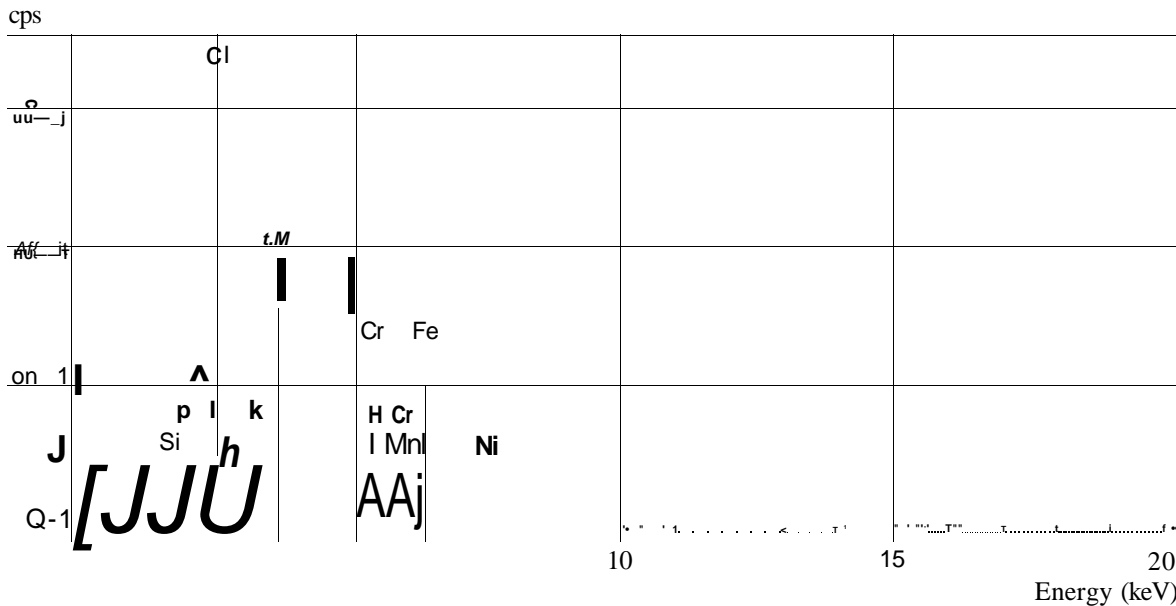


Fig. 2. EDX-spectra of welded joining materials after specimen testing in the solution  $H_2SO_4 + CuSO_4$  + presence of the copper turnings (Monypenny Strauss test).

### CONCLUSION

The electrochemical homogeneity of welded joints of high-nitrogen chromium-manganese steels performed by arc welding in a special protective atmosphere with a nitrogen-containing filler material is higher than for welded joints obtained by using of traditional electrodes. These welded joints are characterized the higher corrosion resistance in 3% NaCl and 22%  $CuSO_4$  solutions, than in 22%  $CuCl_2$ . 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.

### REFERENCES

1. Harzenmoser M. Welding of High Nitrogen Steels// High Nitrogen Steels. - Edited by M.O.Speidel, C.Kowanda, M.Diener. -Hochschulverlag AG an der ETH Zurich. - Zurich/Singen. - 2003. -P.179-188.
2. Harzenmoser M, Diener M. Suitable Filler Material for Welding High Nitrogen Stainless Steels // Proc. 18th Int. SAMPE Europe Conf. of the Society for the Advancement of Material and Process Engineering (Paris, La Defense, 23-25 Apr., 1997). - P. 123-133.