Part 7

ENERGY SAVING

7.3. New sealing and fire-proof materials for power enterprises

7.3.3. Effect of sealing material on corrosion of sealing joint details

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The operational quality of gland seals depends, substantially, on the surface purity, first of all, of accessory rods in the zone of their contact with gland packing. One of the most common reasons of pureness disturbance for the sealing surfaces of rods is the corrosion, which appears in the places of rod contacts with sealing material of gland stuffing. The corrosion phenomenon is observed, in the most cases, for such sealing materials as AG-50, AG-1, AGI, AS etc., which are widely used in electric power industry and which use as a basis the khrizotyl-asbestos. At that the main corrosion faults often take place still at the stage of transportation and storage of accessories, i.e. before its maintenance. The corrosion process begins just after the factory test of accessories, when the process water comes into the gland chamber, and this water contains a considerable amount of ions [3, 5, and 6].

The different organizations carried out the tests for studying the corrosion processes, taking place in sealing joints with foil packing "Graphlex". They include OJSC "NIIkhimmash" together with SPA «Unikhimtek», Moscow; Central factory laboratory of Chekhov works of power machine building; Perm State University together with the CJSC "Novo-met-Perm". The results of comparison tests, carried out by Central factory laboratory of Chekhov works of power machine building, are presented in figs.7.13 and 7.14.

The main conclusion on testing results, obtained by independent organizations: corrosiveness of materials from TEG is by one order lower than for asbestos-containing packing.

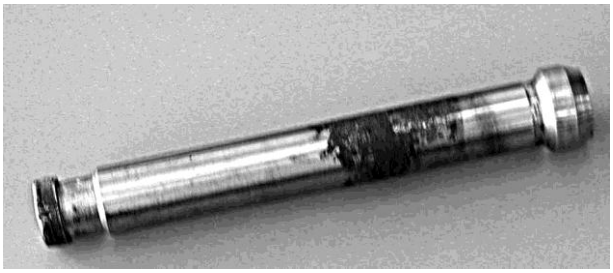

Fig. 7.13. Corrosion of rod made of steel 25H1MF in the zone of contact with gland stuffing of type AG-50 in tap water (duration of tests is 7 months from 28.05.2001 to 21.06.2002). Continuous corrosion

Fig. 7.14. Corrosion of rods made of steel 25H1MF in the zone of contact with gland stuffing:
sample 1 — KGF-G (a content of graphite part is 99.5%), pitting corrosion in the zones of contact of sample with gland packing; *sample 2* — KGF-D (a content of graphite part is 99,8 %), insignificant pitting corrosion in the zones of sample contact with gland packing. The working medium is a tap water. Duration of tests is 7 months from 28.05.2001 to 21.06.2002