environment where P. choreus has competitive advantage.

The proposed method is simple and time-efficient. It has low cost and allows rapid data collection on water pollution levels. Thus, water body can be evaluated fairly fast for water quality class and saprobity. Obtained data allows predicting the duration of water use from a water body as well as determining priorities, selectivity and comprehensive sanitation procedures for remediating water quality. The method can be used for express survey of water quality as well as for a long-term monitoring of a water body.

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HEAVY-CURRENT CONTACT SYSTEMS WITH COMPOSITE LIQUID-METAL CONTACTS OF THE ELECTRICAL APPARATUSES

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The aim of the present study is the development of new designs for heavy-current contact systems (HCS) with composite liquid-metal contacts (CLC) for electrical apparatuses.

It is known, that CLCs possess a great number of advantages:

- operational life - 3000-5000 and even more switch on/switch off operations (on-off);
- 100% savings on silver;
- Savings on liquid metal;
- Minimum transient resistance,
- Minimum electrical power loss,
- Minimum press force,
- Absence of electrodynamic kickback forces,
- Absence of such phenomena, as welding, vibration and sealing of contacts;
- Increase in inclination angle relative to horizon does not influences the CLC resistance greatly;
- Easy to use in conjunction with existing electrical apparatus;
- Easy to operate and maintain;

Because of the above, the task of developing new design of HCS with CLC for modern electrical apparatus appears to be of high priority. Shalaginov's designs of HCS Nos. 1 - 6 are presented in the present study. These HCS designs were developed to ensure further increase in rated current value, decrease of transient resistance, growing reliability, simplified design and longer operational lifetime. In this regard, the electrical contact between the side surfaces of the inner cavities of the fixed bridge and the contact element in these systems is performed in different ways.

Based on the results of the research accomplished these designs of HCS with CLC

may be recommended for application in electrical apparatus, specified for chemical industry, metallurgy and other segments of industry.

We have several patents for utility models. It is Russian patent N 1805509 heavy-current contact system N 1 Shalaginov; Russian patent N 1795524 heavy-current contact system N 2 Shalaginov; Russian patent N 105 069 heavy-current contact system N 4 Shalaginov; Russian patent N 105 070 heavy-current contact system N 5 Shalaginov and Russian patent N 102 841 heavy-current contact system N 6 Shalaginov

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HIGH-CURRENT CONTACT SYSTEM

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The work is dedicated to study of high-current contact systems (HCCS) of electrolysis enterprises of chemical and metallurgical industries.

The goal of the present work is to develop the HCCS with compositional liquid-metal contacts (CLMC) of the electrical apparatus with the prolonged service life, saving the liquid metals and electric power.

HCCS contains slider and break contact performed by mobile and interacting with fixed contacts, liquid metal and rings fixed on the hollow bottom, bus, dielectric plate and hold-down device, it is additionally supplied with hollow with porous gaskets fixed on the hollow bottom with rings, sealing elements, axis, rotation mechanism, at that the hollows of fixed contacts are allocated horizontally in relation to each other, by surface they interact with gaskets soaked in liquid metals and located in hollows, interact with additional sealing elements, and the slider contact is made rotating around the additional axis and bound by bus with a break contact connected with a hold-down device from one side and with a rotation mechanism from the other side.

The application of the given HCCS with CLMC helps obtain 100% economy of silver through use of CLMC, electrical energy saving through reduction of transitional resistance using the whole area of contact (at that the actual contact area equals to the imaginary one and flow lines are not narrowed), and therefore reduce almost to zero the electrodynamic rebound forces (during moments of switching-on – off commutation (On-Off)), economy of liquid metal due to using the closed hollow (the liquid metal is not splashed during the moments of On-Off commutation), to exclude such phenomena as welding and contact vibration.

The given construction of HCCS with CLMC was patented by RF for the useful model No. 94052 (Authors: A.A. Shalaginov, S.G. Tishchenko).