Description
New technology is suggested for alloying the fluoroplastic-4 friction surface by aromatic polyheteroarilens and their mixtures. The new method of fluoroplastic modification is advantageous over its analogs as heat-resistant polyheteroarilens are used in the form of a solution rather than a powder. This does not change the properties of the two polymers, simplifies the processing of polyheteroarilens, and broadens the area of their application as heat-resistant materials. In addition, a new method has been designed for non-waste production of completed parts from fluoroplastic and its compositions by direct pressing.

Technical appraisal and economic benefits
The obtained material has a wear-resistance 30-80 times as high as in pure fluoroplastic but maintains a low friction coefficient. The new technology of fluoroplastic-4 surface alloying does not include additional mechanical treatment and ensures complete utilisation of the expensive material. The suggested approach provides a 1-2 mm thick polyheteroarilen cover with very low consumption of expensive heat-resistant polymers (under 2 wt. % of fluoroplastic).

Application areas
The materials can be used in various fields of machine-building, automotive, and textile industry as seal assemblies, self-lubricating bearings, etc.

Development stage
Initial stage of production on the basis of Baikal Institute for Nature Management SB RAS.

Patent situation

Commercial offers
Joint production.

Estimated cost
Determined mainly by the cost of fluoroplastic-4 (presently 8 US$ per 1 kg).

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