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INCREASING THE RELIABILITY AND STABILITY OF OPERATION OF OPERATING OIL-FILLED ELECTRICAL EQUIPMENT

Due to the fact that a large amount of electrical equipment, in particular power transformers, was put into operation in 1960s-1980s, the transformer oils used for the manufacture of this equipment are more than 30 years old, and sometimes 50-60 years old. It is impossible to manufacture or import most brands of transformer oil used in domestic transformer production. Therefore, in order to support the sustainable production of electrical products, the further safe and reliable operation of transformers and all oil-filled electrical equipment the following issues have become topical, namely, finding and developing analogues to previously used types of transformer oils and the possibility of mixing existing types of oils with new ones without deteriorating their properties and reliability, and without compromising the safety of electrical equipment.

The aim is to study the influence of the physicochemical and electrophysical properties of transformer oil on the reliability and stability of electrical equipment.

Research is carried out using the methods given in standards and regulations, mixing of transformer oils, determination of physicochemical and dielectric properties. According to the research results, an algorithm will be developed for testing and operation of transformer oil according to physicochemical and electrophysical properties and operating conditions, and for determination of changes in the dependence of physicochemical and electrophysical properties when mixing different types of transformer oils. There will also be a method and algorithm developed for evaluation of mixed transformer oils and their application in electrotechnical equipment.

As a result, organizations that operate oil-filled electrical equipment will receive recommendations on methods of acceptance and application of new insulating fluid in new equipment, as well as application of new transformer oil in existing equipment.