

An Expert Statistical System for Treatment of Data Obtained in Monitoring of Air Pollution

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The document entitled "The algorithms for construction of linear calibration curves of devices for measuring composition of substances and materials. Evaluation of characteristics of errors and uncertainty of linear calibration curves in usage of least squares method." has been developed at VNIIM. As its name implies, the normative document (ND) is concerned with evaluation of error characteristics as well as uncertainty of calibration curves. With the goal to alleviate the resulting problems and to accelerate the introduction of the ND into metrological practice, a statistical expert system has been worked out, to the description of which the given report is devoted.

The distinctive feature of the presented statistical expert system is that it realize both method for uncertainty evaluating that is relatively new, and also the traditional method based on the summation of random and systematic components of an error. The user can choose the method for evaluating the accuracy characteristics. Several versions of the system are now under development. These differ in a number of tasks to be solved and are oriented to different types of data. This must allow to respond rather easier to the users inquiries.

The software considered has been written using the programming language "Visual BASIC". A long term storage of input data is realized in the files "ASCII" being stored either on flexible or hard disks. In the case that there are a great number of data, a special description of the data can be prepared (data base in the format of "Microsoft Access"), the work with which is done in rather simple forms. A choice of statistical algorithms that are advantageous for treating a particular set of data is realized automatically on the basis of the rules being stored in the data base of the system.