Such instruments already successfully work beside the customer. One more important direction of work on the development of emission spectrometers is long ago maturated a contributing them in the state roll of measurement facilities. In present time is developed necessary documentation on the spectrometer MFS-8, goes preparation to state certificate testing an instrument. Trace for these instrument certifications will pass a spectrometer DFS-51, we also prepare necessary documentation for unifications and relieving a qualification released earlier and modernized us instruments.

Hereinafter Work On modernizations will be continued. The most important will herewith be an using a new system to registrations with the extended dynamic range and numerical accumulation of signal, ensuring programme control of high-tension power supply the photoelectronic multipliers from the computer. Are they Besides led work on the study of possibility of using in MFS-8 new small-dimensioned high stable generator CRL-a category SPARK-400, which in number of events will be able to change UGA-4.

At present we actively work on the modernization of spectrometer DFS-51. Main herewith is an introduction in serial issue instruments of generator SPARK-400. This generator together with the registration system are built in right in the main block of spectrometer (under polychromator), as a result instrument becomes more compact. One spectrometer DFS-51 with the generator SPARK-400 already installed beside the customer and is successfully used.

Instruments and facilities, proposed OCB SPECTR:
- analytical instruments of company Leeman Labs (USA), including: absorption spectrometer for the analysis of metals and alloys from metallic samples"PULSAR" just, ICP-a spectrometer "PROFILE", mercury analyzer with the system an sampling AP/PS 20011;
- new emission spectrometers for the analysis an metal's and alloys LS-1000;
- well known, but vastly modernized spectrometers DFS-51, MFS-8, ensuring analysis of chemical composition of metals, alloys, powder and etc;
- a spectrometer MFS-7 for the diagnostics of condition of engines and other mechanisms on presence of products of wear-out in the butter;
- new small-dimensioned generator CRL-discharge SPARK-400;
- a system to registrations on the base of controller KMS-1-1, ensuring spectrometer control and registration before 40 analytical channels;
- a modernization of emission instruments of past years of issue on the new system base to registrations and generators - a varied equipment for preparing the tests for their analysis on spectrometers;
- UV-VIS-spectrophotometres SF-56 and SF-2000;
- IR-spectrofotometer IKS-40;
- spectral instruments different appointing to separate consumer orders.

SPECIFIC APPLICATIONS OF ION EXCHANGE RESINS

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Parametric Pumping is a regenerated-free exchange process, which allows the separation of mixture of dissolved heavy metals. Under the classical conditions pH is only a weak parameter for this kind of separation. However, additional suitable complexing agents or using weakly basic anion exchangers converts pH to a strong parameter. Application of strongly acidic exchange resins and citric acid allows an effective elimination of metals forming more stable
complexes from other metals forming less stable complexes. Separation efficiency of ternary mixtures also strongly depends on the complexation properties of the metals.

Diffusive Gradients in Thin film (DGT) was invented for the quantities determination of metals in situ. The simple procedure uses a layer of Chelex resin impregnated in a hydrogel to bind the metals. The resin-layer is overlain by a diffusive layer of hydrogel and filter. Ions have to diffuse through the filter and diffusive layer to reach the resin layer. It is the establishment of a constant concentration gradient in diffusive layer that forms the basis for measuring metal concentration in solution quantitively without the need for separation calibration. The DGT device is deployed for a known time and then the mass of metal on the resin layer is measured after elution with acid by, for example, AAS or ICP-MS. Providing the temperature is known, the concentration in solution can be calculated.

THE ANALYZER OF MERCURY "JULIA-5K"

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Key words: analyzer of mercury, AAS, cold steam method.

1. Introduction

It is intended for the determination of mercury in environmental, food products and provision stuff, toys, drinking water, perfumery-cosmetic products and medical preparations.

2. The spheres of application:

It is used at the direct (without concentration) analytic control and certification of the indicated objects at the level of the indexes of safety.

3. Brief description:

The principle of operation of the device is based on the method of atomic absorption in the modification of “the method of cold steam”. It is constructively made in the form of portable device with the digital indication of the results of measuring (with remembering) in the units of mass concentration of mercury; it is simple and comfortable during the exploitation, for the work of enough qualified laboratory assistant-chemist.

4. The main technical properties:

The range of measuring mass concentrations of mercury (without preconcentration step) $\mu g/cm^3$

(at fixed limiting permissible concentrations of mercury in the drinking water: 0,0005 $\mu g/cm^3$, in the food products –from 0,005 to 0,7 mg/kg, in the ground 2,1 mg/kg, in the toys – from 25 to 60 mg/kg)

The error of analyzer:

at the range from 0,0001 to 0,001 $\mu g/cm^3$ $\pm 15 \%$

at the range from 0,001 to 0,01 $\mu g/cm^3$ $\pm 10 \%$

The time of single measuring, min, not more 2

The mass, kg, not more 3

The overall dimensions, mm 445 x 290 x 85