



ENGINEERING COMPANY

**LLC “ANALYTICAL EXPLORATORY
INSTRUMENTS”
(LLC “AEI”)**



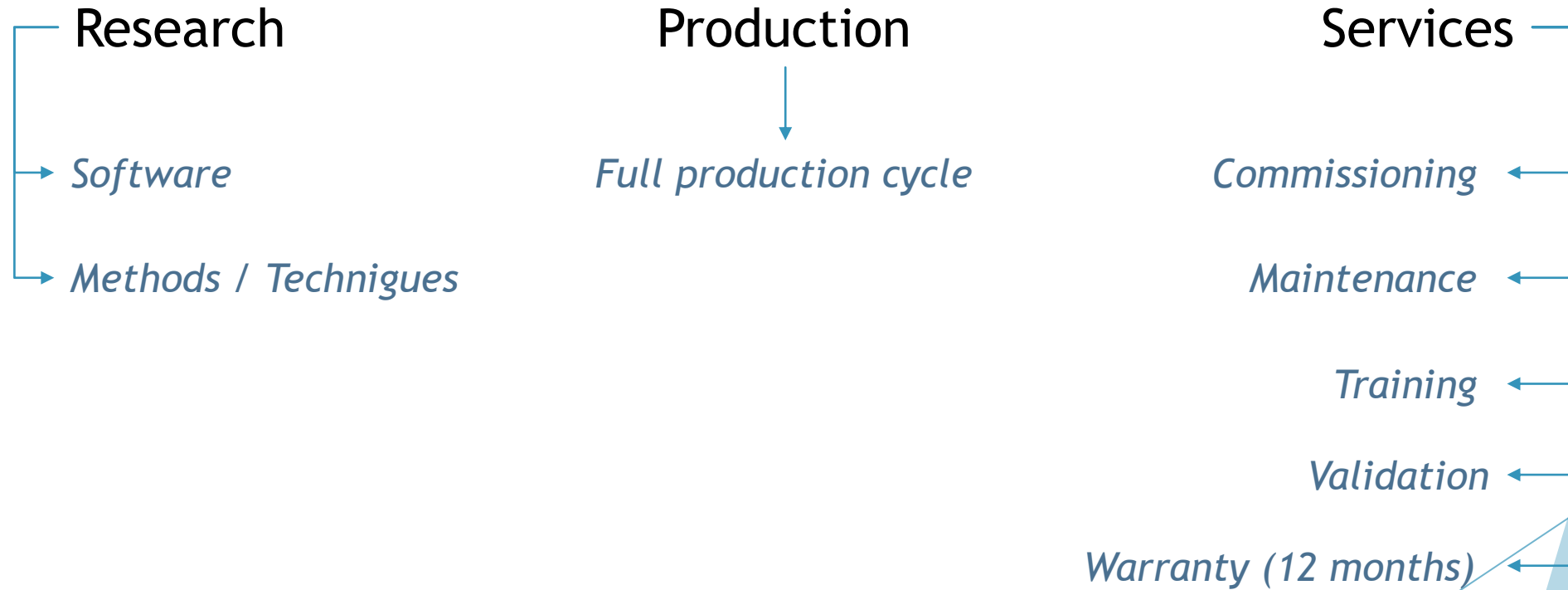
ABOUT THE COMPANY LLC “AEI”

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ENGINEERING COMPANY LLC “ANALYTICAL RESEARCH INSTRUMENTS”

VOLTAMMETRIC ANALYZER AVA-3





ENGINEERING COMPANY LLC “ANALYTICAL RESEARCH INSTRUMENTS”

Who are we?

Group of young and experienced specialists

Development engineers and chemists

Purchasing

Production workers

Management

Sales and marketing



STRIPPING VOLTAMETRIC ANALYZER AVA-3

AVA-3 is an electrochemical instrument using the electrochemical method of the stripping voltammetry on the working solid electrode.

AVA-3 is designed for measuring mass concentrations of ions of toxic elements (**Cd, Pb, As, Hg, Zn, Cu, Tl etc.**) at the lower-level concentrations.

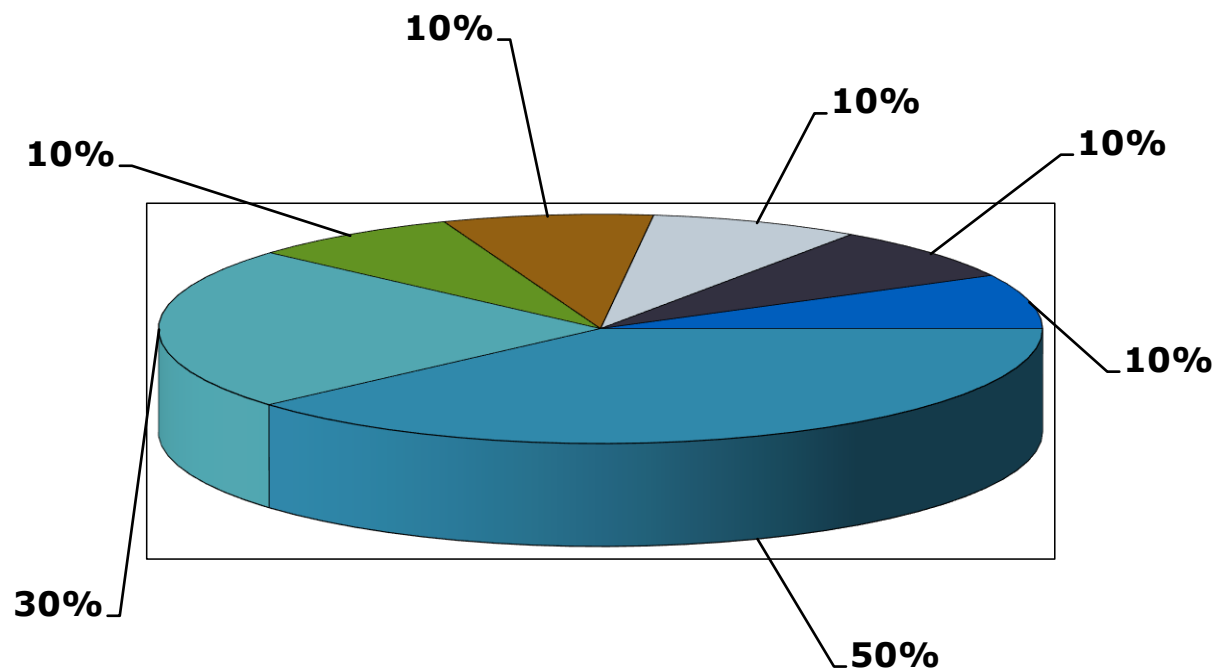
The work of AVA-3 is controlled by PC.

LLC “AEI” has been producing and selling AVA-3 since 2012.
Around 350 AVA-3 is operating in Russia, Kazakhstan, Belarus now.





APPLICATION AREA OF ANALYZER AVA-3



- sanitary and epidemiological control
- ecology
- medicine
- pharmacy
- industry
- science
- process engineering



AVA-3 ANALYZER IMPLEMENTATION

Laboratories

- Chemico-analytical
- Analytical
- Physico-chemical
- Ecological
- Toxicological
- Technological
- Medical
- Research
- other





AVA-3 ANALYZER ADVANTAGES

The ability to define ultralow concentrations of toxic substances applying user-friendly instrumentation

The ability to define up to 4 elements simultaneously: Cd, Pb, Cu, Zn

The ability to define toxic valency forms of chemical elements (As, Se, Cr..), which is difficult for AAC, ICP analyzers

Low cost of the analysis: AVA-3 uses affordable chemical agents and state-approved samples

Any additional equipments aren't required

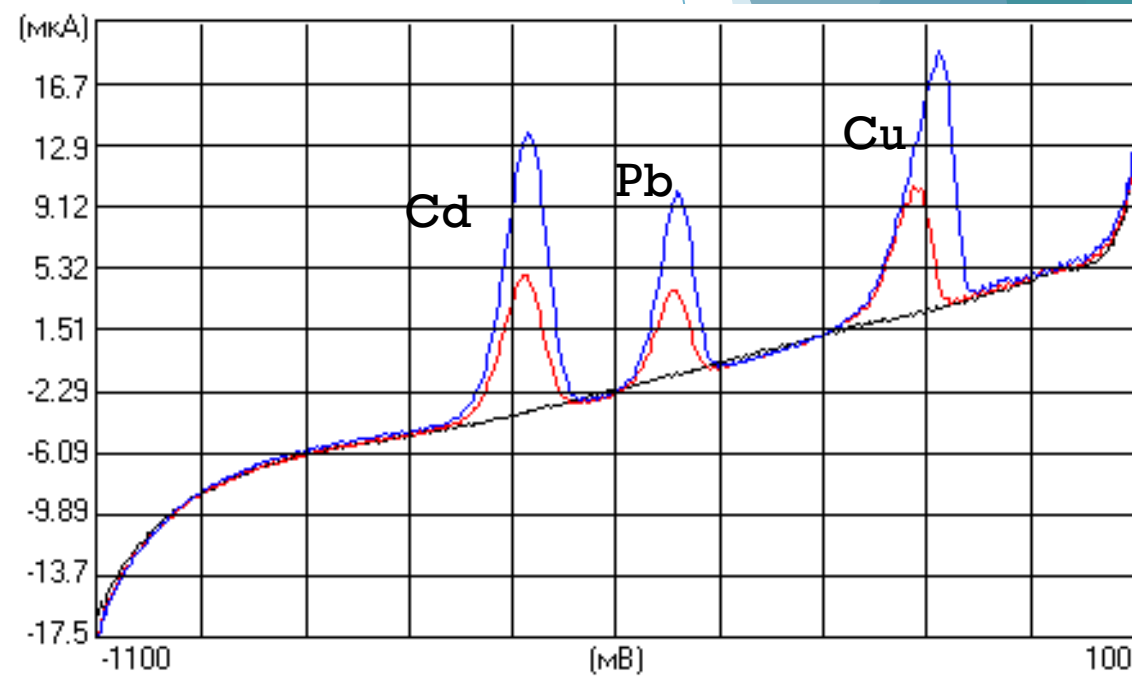
Toxic chemicals (metal mercury) aren't required



AVA-3 ACTION PRINCIPLE: ELECTROCHEMICAL METHOD OF THE ANALYSIS

- AVA-3 implements the electrochemical method of the **stripping VOLTAMMETRY** on the working **solid** carbon **ELECTRODE** with linear sweep trace.
- **THE METHOD** is considered **ARBITRARY** in the international practice of measuring lead and cadmium.
- **THE METHOD** allows to define toxic forms of chemical elements
- **INNOVATION** the use of **VARIOUS** types of working **SOLID** electrode with a reusable operating area

Recorded characteristics - voltammetric curves allow for qualitative and quantitative state estimation of the probe



High reliability of the product as consequence of 30-year experience shared and implemented by the developers and producers of analogous equipment.



AVA-3 IDENTIFIABLE ELEMENTS LIST

Name	Index	Sensitivity (ppb)
Cadmium	Cd (II)	0,01
Cuprum	Cu (II)	0,01
Arsenic	As (III)	0,2
Hydrargyrum	Hg (II)	0,005
Lead	Pb (II)	0,01
Selenium	Se (IV)	0,02
Zinc	Zn (II)	0,05
Iodine	I (I)	0,2
Cobalt	Co (II)	0,01
Nickel	Ni (II)	1,0
Silver	Ag (II)	1,0
Thallium	Tl (III)	0,005
Chrome	Cr (VI)	5,0
Manganese	Mn (II)	1,0



AVA-3 ANALYZER PERFORMANCE

Relative error in the object probe analysis

complies with the regulations

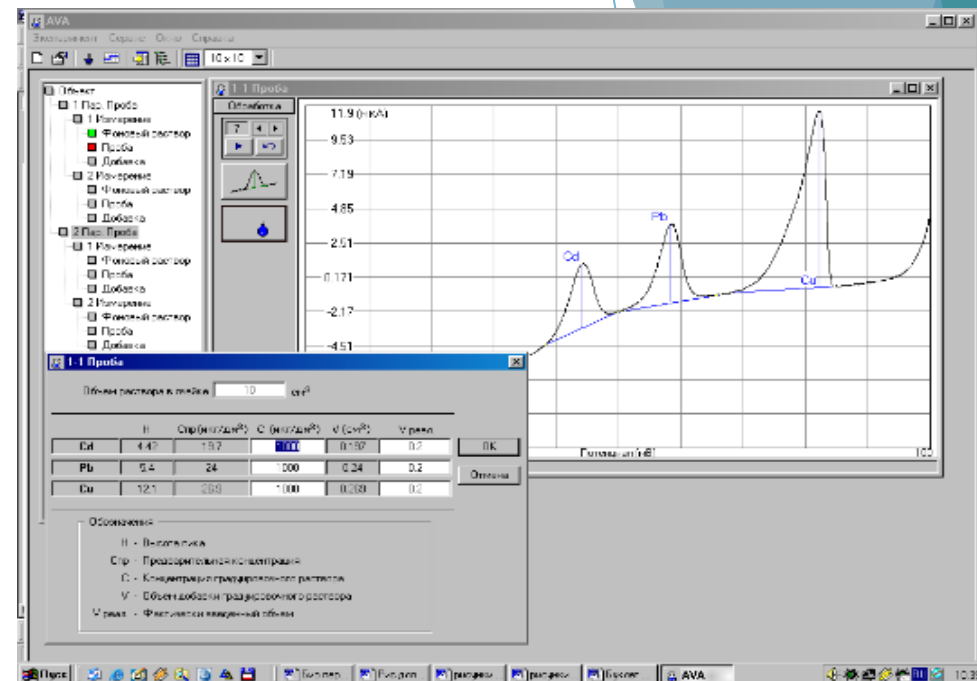
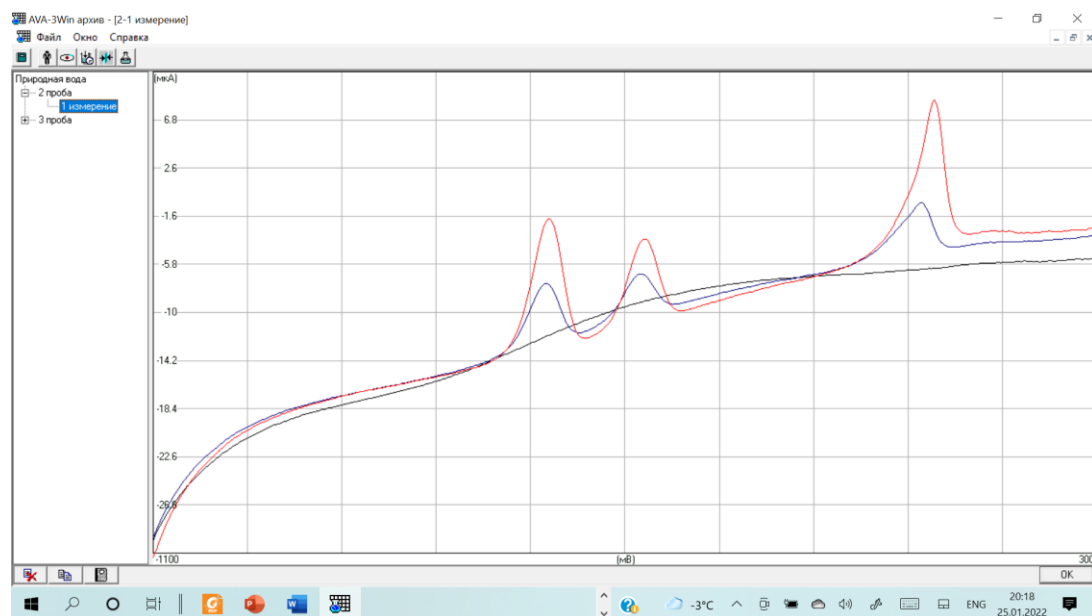
Solid working electrodes	carbositall / Au
Number of electrochemical cells	1
Connection to the PC	USB cable
Time to enter „service mode“, min.	5
Time for 1 probe analysis (without prob preparation time), min.	2-10
Connection voltage (50 Hz), V	220
Power consumption, W	25
Instrument mass, kg	3
Overall dimensions, mm	180x260x300
Instrument life expectancy, years	7-10
Additional equipment (ventilation, exhaust device, gas lines etc.)	not required
Continuous operation time, Hr.	8-10
Control software	«AVA-3 Win»



Software “AVA-3 Win”

Software “AVA-3 Win” is installed on a laptop/PC.

“AVA-3 Win” controls the operation of the analyzer AVA-3.



- Setting measurement parameters, creating an "experiment tree"
- Analytical signal record, element identification, sample concentration calculation
- Save results and print of protocols
- Develop of new methods

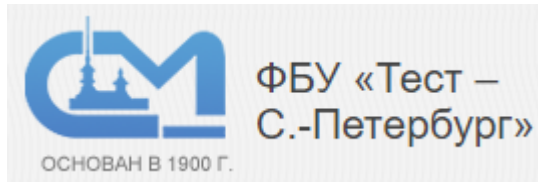


ANALYTICAL TECHNIQUES OF MEASUREMENT BY AVA-3

Element	Water	Air	Soil	Food products	Biological substances	Pharmacol. products	Medical drugs	Cosmetics	Houseware, packaging	Toys	Gasolines	Element
Cd				*								Cd
Pb				*								Pb
Cu				*								Cu
Zn				*								Zn
Hg				*				*				Hg
As				*				*				As
I												I
Se												Se
Mn												Mn
Ni												Ni
Co												Co
Fe												Fe
Cr												Cr
Ag												Ag
Tl												Tl
Te												Te
Phenol												Фенол
Sn				*								Sn
Sb												Sb
Bi												Bi
Element	Water	Air	Soil	Food products	Biological substances	Pharmacol. products	Medical drugs	Cosmetics	Houseware, packaging	Toys	Gasolines	Element



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ОБЛАСТНОЕ ГОСУДАРСТВЕННОЕ
УНИТАРНОЕ ПРЕДПРИЯТИЕ
«ЭКОЛОГИЯ»



АНО ДПО «ИПК «Прикладная
экология»



Федеральное бюджетное учреждение здравоохранения
ЦЕНТР
ГИГИЕНЫ и
ЭПИДЕМИОЛОГИИ
в городе Санкт-Петербург

ВНИИМС
На метрологической службе
с 1900 года



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