NUVIATECH INSTRUMENTS

SPECIFICATION SHEET

NuAlphaCell

Electrodeposition cell for the preparation of high resolution alpha spectrometry samples

The NuAlphaCell electrodeposition cell system is designed for the radiochemical preparation of samples intended for high resolution alpha spectrometry or even for the preparation of standards intended for low energy gamma spectrometry measurements. Using different types of vials (volumes, threads, materials), the system ensures proper customisation for each experiment and guarantees any cross-contamination. The active area size of approximately 200 mm2 enables the deposition of large amounts of a sample with reasonable resolution. The system is suitable for use of various plating solutions, including sulfate, oxalate and even RTIL (room temperature ionic liquid) solutions.

Benefits

- Chemically-resistant material
- Magnetic and electric field control
- Electrode shape specially designed to maximise yield and uniformity of deposition
- Modularity of the system
- Wire-free conception
- Base junctions enable serial connections of several cells together

Key figures

200 mm^2

Active area

0

Cross contamination

8 pcs

Cylindriccal magnets

V202603

NuAlphaCell

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Product description

The NuAlphaCell electrodeposition cell consists of synthetic materials (PEEK, PVDF) that are perfectly resistant to the very corrosive environment of research laboratories. The inner cell consists of user-defined disposable vials (e.g. scintillation vials) ensuring cross-contamination is avoided. The inner ring ensures adaptability to different threads of vials, therefore in case of different threads, only the inner ring is replaced, which makes this a particularly cost-effective solution. The assembly/disassembly of the vial holder is ergonomically designed to make handling as simple as possible, while being fast and efficient. The system has an internal recovery container (in case there is an accidental leak of the solution) that can be easily emptied and decontaminated at any time by the user without any damage to the material. By simply changing the polarity, the system allows an electro-chemical etching of the stainless steel planchet intended for deposition, which ensures its perfect purity. The user can also choose the intensity of the current (depending on the power supply) as well as the speed of rotation of the electrode, that ranges from 0 to 200 rpm. The deposition vial is additionally surrounded by a ring containing eight cylindrical magnets in order to create a magnetic field that ensures a better homogeneity of the sample. The magnets are demountable so the intensity and direction of magnetic induction can be changed.

Product specifications

The platinum electrode is immersed in the contaminated solution. This electrode, in rotary motion, represents the anode of the system. The cathode is represented by the stainless steel stand located at the bottom of the scintillation vial. Regulated and constant direct current is then applied in the solution and the process of electrolysis results in the galvanic deposition of the radionuclides from the solution to the steel planchet.

Technical parameters

Power supply	User-definable
Weight	4.6 kg (10 lb)
Overall dimensions (w x d x h)	140 x 180 x 300 mm (5.5" x 7" x 118")
Operating temperature	Up to 80°C (176°F)
Storage temperature	From -40 to +70°C
Electrode	Platinum-iridium (90:10) wire
Electrolysis current	Controlled and adjustable DC/voltage from power supply unit
Electrode rotation speed	From 0 to 200 rpm
Construction materials	Stainless steel (base, cell support), PEEK (inner ring, lid, electrode cover), PVDF (cell body)
Magnets	8 pcs of NdFeB T-10-40-N (1.3 T each)

Product applications

- Laboratory analysis
- Environmental radioactivity monitoring
- Health physics personnel monitoring
- Nuclear fuel cycle processing
- Nuclear forensics
- Material testing
- Geology and mineralogy