AJELIS
ADJUSTABLE RECYCLING SYSTEMS

NEW GENERATION OF SORBENTS FOR METAL SEPARATION FROM LIQUID WASTE

PRODUCT

Nano/micro-fibres, having more powerful and selective metal capture properties compare to actual metal removal technologies.

APPLICATIONS

- Separation of heavy metals
- Selective separation of rare earths / strategic metals
- Selective separation of Cs and Sr from nuclear liquid waste

INNOVATION

AJELIS fibers have extremely high metal capture speed, selectivity, capacity and a decreased regeneration demand frequency which, is to a great extent, a function of their **extremely large surface areas**.

AWARDS

2012 : 1st prize TALANTE NUCLEAR CHEMISTRY FOR SUSTAINABLE FUEL CYCLES 2012 for SOLIEX Project

2013 : NanoSaclay Laboratoire d'Excellence en Nanosciences et Nanotechnologies - LABEX CYTER Project

2014 : INNOVATION 2030 CONCOURS MONDIAL D'INNOVATION, IDEX CYTER, ANR CYTER, NEEDS nucléaire énergie • environnement • déchets, DIM NANO-K

2015 : 17e CONCOURS NATIONAL D'AIDE À LA CRÉATION D'ENTREPRISES DE TECHNOLOGIES INNOVANTES bpifrance scientipôle initiative nano-K Réseau Francilien DES ATOMES FROIDS AUX NANOSCIENCES

2016 : APE BPI, ASTRE, ANR NANOEXTRACT AGENCE NATIONALE DE LA RECHERCHE ANR

BENEFITS OF AJELIS FIBERS

compare to ion exchange/chelating resins

- Greater metal absorption capacity and selectivity :
  - selectivity for Cs and Sr over Na
  - rare earths/ heavy metals, heavy / light rare earths selective separation
  - extra-high capacity for Sr capture : 254 mg/g of fiber
- Tolerance to organics – it is not necessary to deploy additional scavenging resin systems or activated carbon precursors
- Same set-up as ion exchange resins - but resins can be changed for AJELIS fibres
- Lower bed-volume passage
- Smaller scale treatment plants are possible
- Absorption of low level metal concentrations (below the threshold of conventional resins)
- Regeneration with the use of around 10 times less acid compare to resins
- Regeneration speed is higher (compared to circa 10x longer with a traditional ion exchange resin)
- Enhanced efficiency gives significant performance gains and reduced operational and capital costs
- >100 regenerations possible, no chemical degeneration through regeneration

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SAS au capital de 10 000 EUR - TVA intracommunautaire FR 61 804 731 578

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PATENTS

- E.A. Shilova, P. Viel, M. Benzaqui, Patent **FR 15/57570,** 5 August 2015
- E.A. Shilova, Patent **FR 15/575563,** 5 August 2015
- E.A. Shilova, V. Huc, P. Viel, Patent **FR 14/52958**, 3 April 2014
- E.A. Shilova, V. Huc, P. Viel, Patent **WO/2013/124831,** 24 February 2012

CREATION OF COMPANY

September 2014

READYNESS

First products went on sale in 2016

PRINCIPAL PARTNERS

NanoSciences ILE-DE-FRANCE

cea SACLAY

cnrs dépasser les frontières

UNIVERSITÉ PARIS SUD

université PARIS-SACLAY

IncubAlliance

HEC PARIS Challenge+

ADVISORY BOARD

cea investissement AMORÇAGE TECHNOLOGIQUE

UiTS TECHNOLOGIES DES SURFACES

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