

REVIEW REPORT

**Electrolytic Plasma Cell
Decades of experiences of preliminary evidences**

June 2017

REPORT RELATED FOR OPEN OFFICE MEETING

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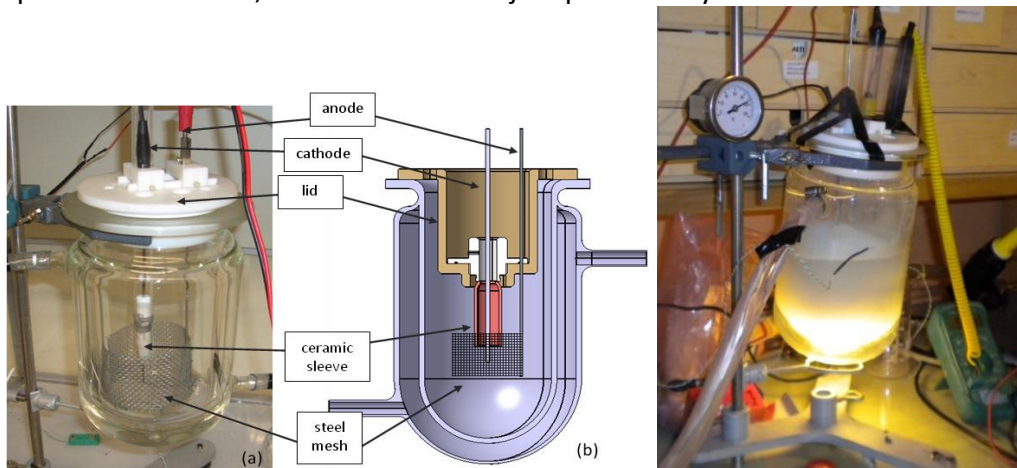
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CONTENTS

1.	ABSTRACT	3
2.	NUCLEAR EVIDENCIES.....	3
3.	ENERGETIC ANOMALIES	6
4.	FUTURE	6

1. ABSTRACT

- This paper explains experimental evidences and preliminary convergences on anomalies emerging from testing on electrolytic plasma cell
- These anomalies are two types: detection of nuclear evidences and energetic anomalies
- Despite the evidences, we have obtained just preliminary evidences



The cell related on experimental evidences is an electrolytic cell in which a plasma is triggered through a balance between voltage, electrolytic solution, electrodes' surface. The voltage range is around 200 / 300 V DC, current density around $3A/cm^2$. Several experimental tests have shown preliminary results on two main fields:

- Nuclear evidences
- Calorimetric anomalies

2. NUCLEAR EVIDENCIES

The shown results were obtained through:

- dosimetric measurements for nuclear particles detection (neutrons)
- chemical analysis of solution, using ICP-MS method

dosimetric measurements for neutron detection

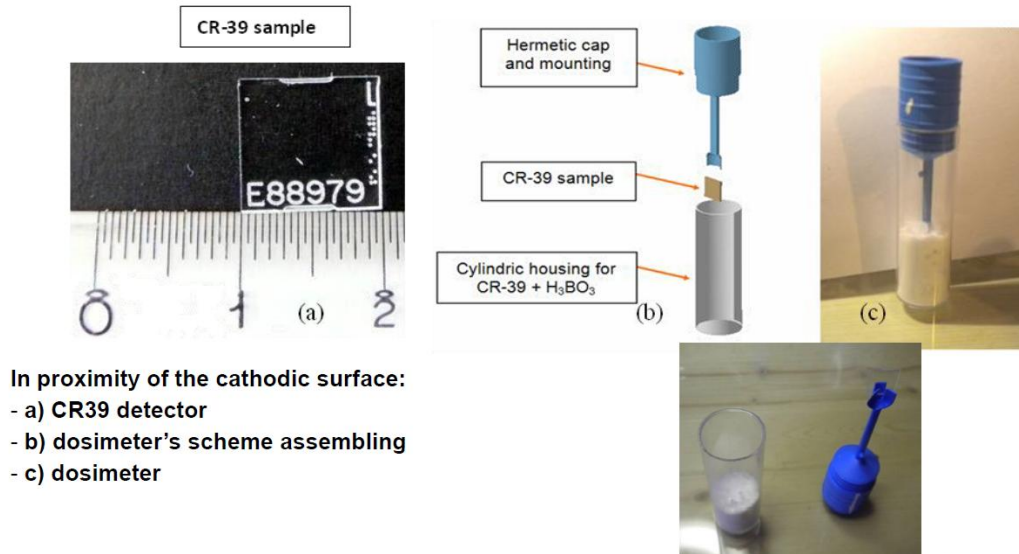
a new detector kind, based on Boron property to 'convert' a thermal neutron in an alpha particle, bound to a CR39 polymer (able to be etched by alpha particle) were implemented.

After a calibration campaign under a well known thermal neutron rate, these detectors were applied for neutron detection.

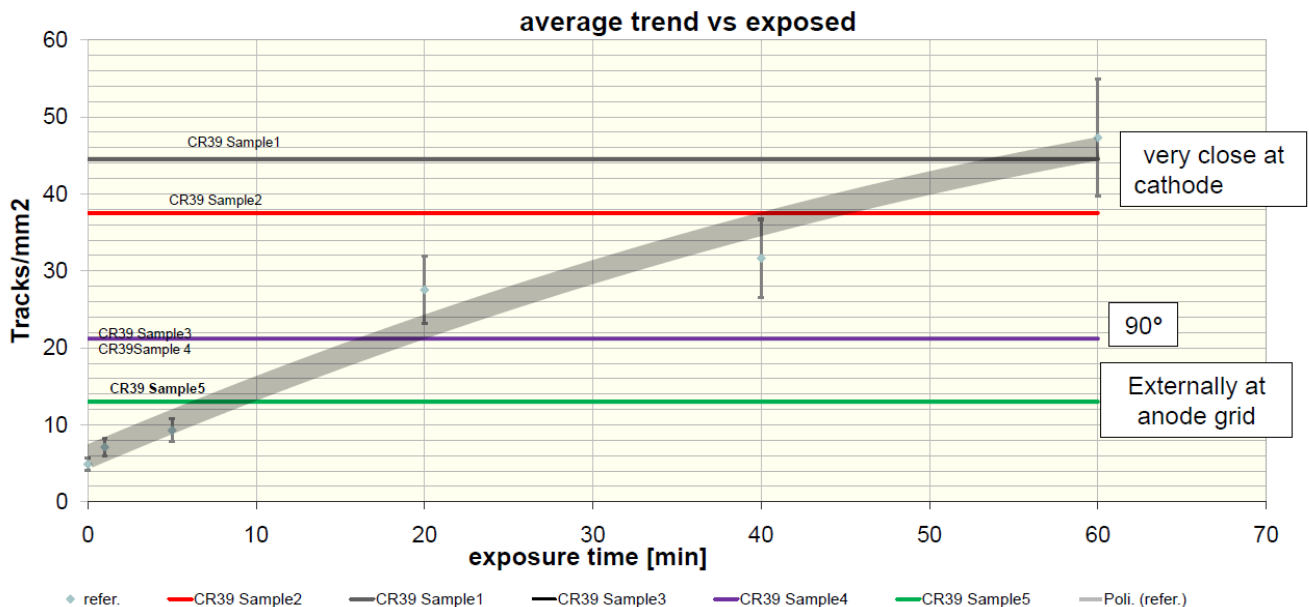
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This campaign has produced the results shown below. In which a significant thermal neutron flow rate is measured during plasma cell tests.



The neutron detection method based on CR-39 nuclear track detectors, coupled with a boron converter, has demonstrated neutron generation by plasma discharge in an electrolytic cell with alkaline solution. A significant number of tracks were revealed by the CR-39 detector samples positioned in close proximity to the plasma discharge, next to the tungsten cathode of the electrolytic cell. The blank detectors show no tracks, if positioned far from electrolytic cell.

Nuclear transmutations

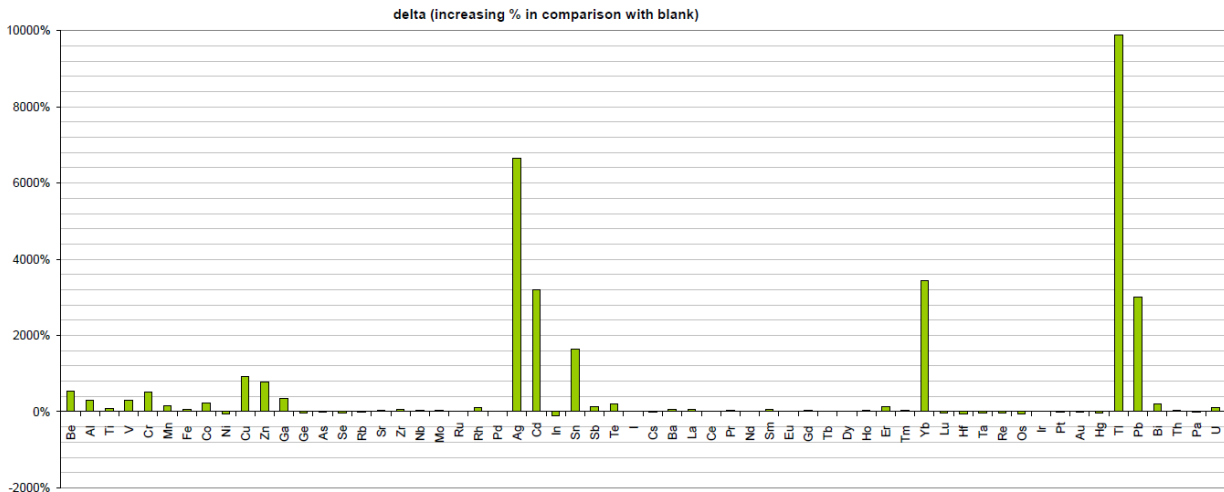
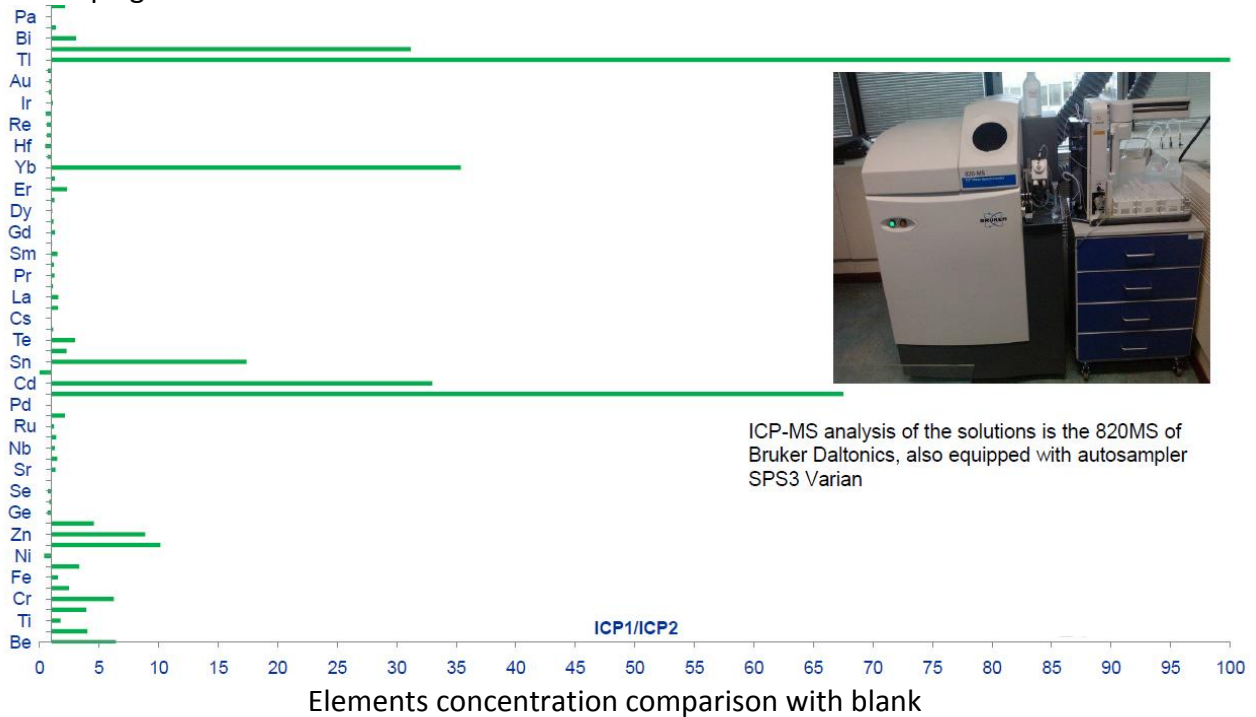
Through the ICP-MS device, two different measurements were performed on electrochemical solution, taking in account the blank reference for comparisons.

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First campaign:



Several important increases of composition, in terms of percentage and in terms of quantities, but also important decreases, of chemical species (like indium, but also nickel, rhenium, osmium, hafnium, platinum, gold, mercury, germanium, arsenic and selenium)

Second campaign:

The second measurement campaign was performed by an important Italian research institution. It showed similar abnormalities in the composition of the solution that emerged after the step of plasma prolonged.

The results are shown on next picture. The values are shown in ppm for each element

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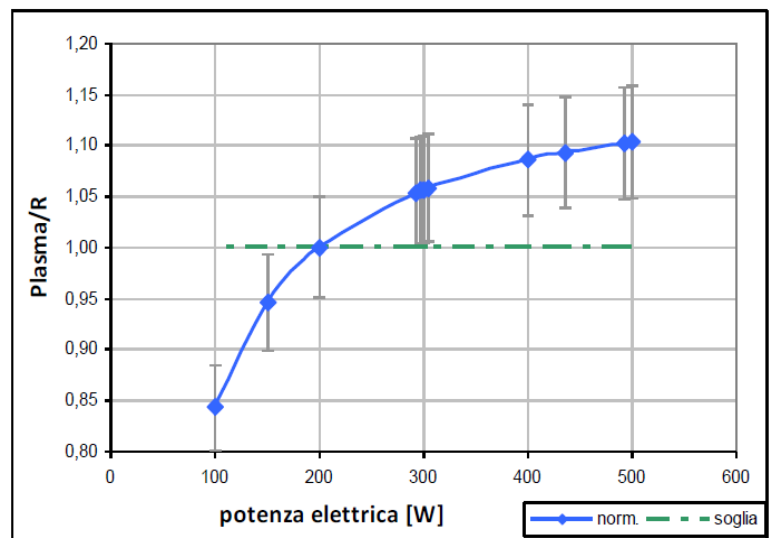
	Re	Os	Au	Pt
A [ppm]	0.13	0.26	2.59	0.47
Std dev	0.0145	0.0232	0.0215	0.00275
B [ppm]	0.004 (tracce)	0.06	<i>Inf. limiti di detezione</i>	<i>Inf. limiti di detezione</i>
Std dev	0.0023	0.0299	--	--

Gold and platinum in the “B” sample are under the instrument’s sensitivity

3. ENERGETIC ANOMALIES

A flux calorimeter was used for cell produced energy measurement, while several electromagnetic filters on cell electrodes were fitted to avoid errors in input electric power measurements, reducing the possibilities of high frequencies on the meter. The measurements (electric and calorimetric) were compared on the results obtained with a well known thermal heater.

Results:



Despite the limitations imposed (obligation to long-term tests, no control on the T cell, no check on the flow rate) which determine the scatter of the calorimetric anomalies of short duration, we have measured anomalies that require the need for improvement of system analysis.

4. FUTURE

- The first preliminary measurements and the first results are NOT definitive. They are just PRELIMINARY evidencies for a long and deep investigation.
- From the point of view calorimetric the way is already marked and characterization of the plasma will be performed through the steps already described relative to electrical measurements, and calorimetric.