

Possible LENR aspects

Saturday, May 19, 2012
7:55 AM

Variable reactions need variable conditions, what is that based upon?

Total fluidity and zero point slipstreaming.

X International Workshop on Anomalies in Hydrogen Loaded Metals.

Experimental results on sub-micro structured Cu-Ni alloys under high temperatures
Hydrogen/Deuterium interactions.

Pontignano (Siena)-Italy; 10-14 April 2012

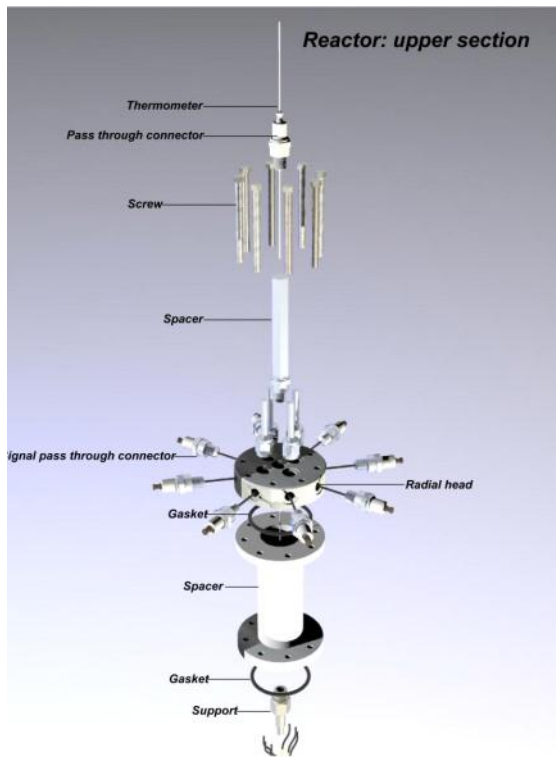
(ISOTAN 44 from Isabellenhutte, Germany) with nominal composition: Cu55-Ni44-Mn1.

Brand Name	ISOTAN ^{®1)}		
Material Code	2.0842		
Abbreviation	JN / LN / TN / UN / EN / JNX / LNX / TNX / UNX / ENX / KNCB / CNC		
Chemical Composition (mass components) in % Average values of alloy components			
Cu	Ni	Mn	
Balance	44	1	

Extremely large values of measured catalytic power (DE, in eV) in respect to the dissociation of H₂ (Langmuir 1999, 15, 5773, S. Romanowski et al.), as following:
Ni_{0.3750}-Cu_{0.6250} ==> +3.16eV

apart the absolute values of dimensions, to be further optimized, we obtained frequently tri-dimensional shapes of geometries, called Skeleton type. Such tri-dimensional geometry has several intrinsic potentialities in respect to gas absorption.

“standardized” wires: (“naked”) F=200mm, l=105cm. Initial values of weight (e.g. 307.4mg), diameter (+-1mm) and resistance (e.g. 17.16 Ohm) were carefully measured.



gas tight electrical connections made by modified mini spark plugs (NGK: 5812 CM-6, Japan)

Inside the reactor, innermost area (inside a Cu tube used for IR reflection), are inserted 3 long (about 80cm each) and thin ($F= 200\mu\text{m}$) wires, U shaped. Each wire is electrical insulated by, double, alumina and glassy sheath.

The composition of the 3 wires are: a) Pt (main reference); b) Constantan thermally treated to produce nano-micro structures (cross reference of the really active one); c) same as b) but with a final coating of Pd (i.e. liquid $\text{Pd}(\text{NO}_3)_2$ that underwent thermal decomposition) at sub-micrometric thickness.

At the end, it is introduced H_2 (pressure: 6-8Atm).

A clear event of anomalous heat, with excess energy over 60kJ, is reported. Taking into consideration just this specific event, and neglecting all the others, considering the amount of material used (about 80cm of wire, i.e. 224mg with Ni= 98mg), the integral of the energy is larger than 380eV/Ni atom, i.e. over 95 times the chemical limit of 4eV/atom Ni.

It was experimental found that even low cost material, like commercial Cu-Ni-Mn alloy (named Konstantan or ISOTAN 44), when its surface is properly modified from the point of view of dimensionality, can be used as material able to produce anomalous heat effects because close interaction with Hydrogen (or Deuterium, but at lower intensity) at high temperatures ($>300^\circ\text{C}$).

We have found that the amount of anomalous heat increases when the sub-micro structured material is covered by a thin layer of Pd. At the moment the result are of modest entity, perhaps because the geometry isn't optimal.

Moreover, in respect to indirect heat warming, we found that the effect increases when there is a direct flow of current along such material (i.e. electro-migration and/or forced not-equilibrium conditions), in the shape of thin and long wire. Such behavior was previously found also in experiments using Pd/Deuterium: it can be speculated that it could be, again, a situation where the so-called "Preparata effect" could be realized.

It is quite interesting, and intriguing, that also a group well expert on nano-materials and production of anomalous heat effects (i.e. Akito Takahashi and Akira Kitamura with co-workers, from Osaka&Kobe Universities and Consultant of Technova Company-Japan), independently from us and without knowing each-other of the specific tests in progress, decided to explore an alloy based on Ni-Cu-ZrO₂, dimensionality of the order of 2-10nm (similarity to Pd-Ni-ZrO₂). Their results look really promising (2 reports at this Workshop).

More systematic work is necessary, especially for material preparation and characterization, specially SEM and (hopefully) TEM analysis.

In conclusion, the Cu-Ni alloy, at nano-m sizes, interacting with hydrogenated materials at high temperatures (>300°C), could be a simple and low-cost candidate for "new" energy production, over the values of usual chemistry (4eV/atom). Further efforts on experimental activity could, soon, pay-back.

Francesco Celani(1, 2), E. F. Marano(1), A. Spallone(1,2), A. Nuvoli(1), B. Ortenzi(1),
M. Nakamura(2), E. Purchi(2), G. Zangari(2), S. Pella(1), E. Righi(1), G. Trenta(1), F. Micciulla(1), S. Bellucci(1), S. Bartalucci(1), S. Cupellini(2), A. Mancini(3), F. Maggiore(3).

After careful review several times on the document these clips were taken from, there are a few comments I need to make as a mechanic after dissecting images and text of the above report.

First of all the information sort of all fit together with what we were led to believe by the Rossi Focardi information released in early 2011 and a general concept of the process is disclosed.

I will use the acronym LENR due to familiarity of others to the name associating the technology with a definition.

Generally accepted are these consistencies with LENR claims;

- 1) ISOTAN 44 is an attractive substitute for Ni nano powder,
 - a. dual purpose i.e. heater low power,
 - b. easier to work with and safer,
 - c. logical for shipping purposes,
- 2) Pressurized hydrogen pulsated, higher pressure and more pulsations in pressure.
- 3) Process to grow nano structures and geometry on outer circumference of ISOTAN 44,
 - d. microscope a necessity,
 - e. Pd coating a potential choice,
 - f. simple process can be grown in fuel chamber.
- 4) Length of ISOTAN 44 compares to weight of nano powder and must add heat potential with added length.
- 5) Copper tube needed for fuel chamber.
- 6) Pulsating dc current used for frequency of ISOTAN 44 wires.
- 7) Heating elements needed to stabilize heat transfer from fuel chamber to cooling block.
- 8) Slipstreaming energy, biasing magnetic domains allowing the zero point slipstream of fluidity in the combined energy of fluctuating fields of electricity and magnetism.

Details that did not fit mechanically viewed;

- 9) One of the first questions I had is why do they have 9 electrical connectors when there is claimed 3 wires as reactor elements, there should be only 6 wire ends with three wires as they claim. The importance of this is that if three wires have 6 ends running on dc and even if the circuitry had separate grounds that would require only 6 connectors yet they show 9.
- 10) The next thing is their insulating the wires which they claim sulfur is a big problem, then that contradicts the contamination from the wire shielding within the sealed pressurized fuel reactor chamber copper tube.
- 11) Their reactor does not have much capability mechanically speaking but I believe it does in fact prove we need to further investigate this new disruptive technology others have termed LENR.

