

Abnormal absorption of hydrogen in nickel at ambient temperature with associated emission of neutrons

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While it is known that nickel at a temperature of a few hundred degrees if in hydrogen can slowly absorb a certain amount of this gas [1], there is no evidence that this can occur at room temperature and at pressures below 1 bar. On the contrary, by conducting studies and experiments on LENR anomalies in the ARGAL laboratory in Bareggio, Italy, it has been experimentally verified several times that nickel in the form of wire, thin ribbon, foam, if properly covered with a thin layer of palladium, can absorb hydrogen in considerable quantities even at room temperature.

Example of results on thin nickel sheet (cut from a ribbon) with 200 nm of Palladium deposited on its surface. (Fig. 1).

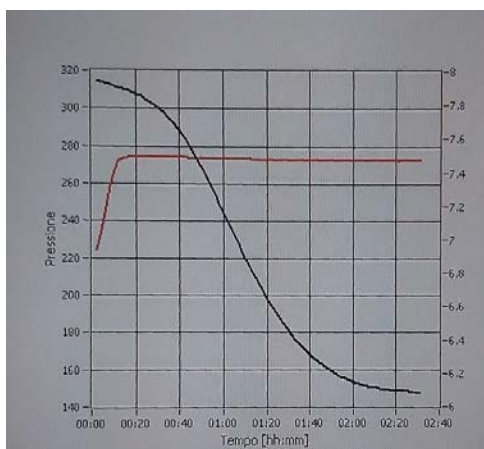


Fig. 1- graph in which the black line indicates the drop in pressure from 315 mbar to 147 in about 2 hours and 30 minutes. The red line shows the behavior of a Palladium resistor as thin film Hydrogen sensor.

The material weighing approximately 0.6 grams, inserted inside a steel chamber connected to a vacuum system and a hydrogen generator for the introduction of the gas, after a few minutes from the introduction of hydrogen at a pressure of 315 mbar, began to absorb the gas and the pressure as seen in figure 1 rapidly dropped to 160 mbar. The reactor chamber volume is 290 cc and so the amount of the hydrogen absorbed can be easily calculated, and also the $\langle H \rangle / \langle Ni \rangle$ ratio.

Simultaneously the neutron monitoring began to show a significant rise in the background as can be seen in Figure 2 which shows two distinct peaks in the distribution of n / h neutrons per hour. The background distribution is the dotted line histogram.

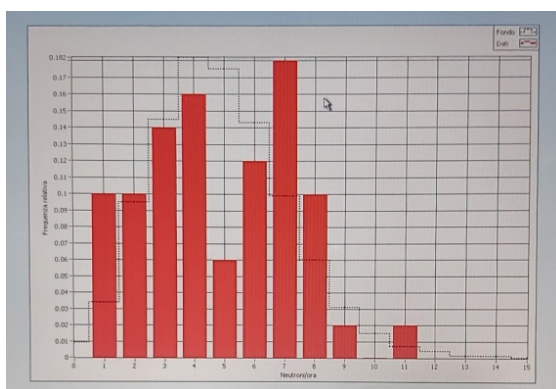


Fig. 2 – neutron per hour monitoring histogram with data relating to many hours in which the reactor was under vacuum and for a similar number of hours after the absorption of hydrogen following the introduction of the gas at a pressure of 315 mbar

References

[1] S. Focardi, V. Gabbani, V. Montalbano, F. Piantelli, S. Veronesi, “On the Ni-H System”, SIF Conference Proceedings, Vol. 64, pp. 35-47, 1997.