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## **ON THE DEVELOPMENT OF AN APPARATUS FOR THE ACTIVATION OF WATER AND AQUEOUS SOLUTIONS (AND NON-AQUEOUS LIQUIDS) THROUGH THE APPLICATION OF A FIELD OF QUASI-PARTICLES**

***Gualtiero A.N. Valeri***

Valeri Consulenza Industriale – Centro Studi – Via Besso, Lugano [CH]  
e-mail: [valeri@valericonsulenza.eu](mailto:valeri@valericonsulenza.eu)

There are many devices on the market today that, in order to avoid the deposition of insoluble salts in boilers and pipes, implement water activation on the basis of the principles expressed by Giorgio Piccardi since the '30s of the century just ended. Many of these are based on the application of a magnetic field generated by a pair of permanent magnets at right angles to the flow of water intended for treatment. These devices generate a weak electrical current induced in the flow of water in motion. A more advanced type applies to the water current through two electrodes, the electrical impulses sawtooth, with a few tens of hertz frequencies and voltages of a few volts. The limit of the first type of apparatus described is that if the water does not pass fast enough is not activated, and also they lose their effectiveness within a few months of operation, even if the cause of this is not clearly identified. In any case, the extent of activation induced is rather limited. In the second type of device, the limit of them is that the state of activation induced varies depending on the conductivity of the water, and, of course, particularly conductive solutions are not negotiable, as is also clear that the electrodes tend to get dirty by changing the amount of charge that passes through the water current. That is not possible, even in this case, to ascertain in advance the amount of energy that produces the activated state and that which is dispersed in the form of thermal energy for the motion of ions caused by the passage of electric charges, and much less dispersed in other parasitic phenomena. By studying the works of Giorgio Piccardi left on this issue, we note that he had identified a large number of phenomena that could lead to the activation in the water: By examining these phenomena, and the fact - well known - that the masses of activated water can trigger another mass of water-activated through a metal wall or insulation, it is found that the activation status is not due directly and necessarily by a current electricity through the water, but by some kind of particle, which may

arise secondarily from an electric field, which we assume to be similar to the quasi-particles (phonons) at the time described by Peter Debye and Albert Einstein. The similarities found between the experiments carried out - in different contexts - from Giorgio Piccardi and Wilhelm Reich suggest that these quasi-particles are identifiable, in fact, in the orgones described by Reich. It can be assumed that the flow of these particles through the water induces a short-range ordering in the clusters of water molecules (as they are in liquid water and water vapor at moderate temperatures, before they dissociate into individual molecules at higher temperatures), or a state of higher order ordinary and governed by the laws of quantum mechanics, namely that higher levels of order corresponds to a higher energy level of these molecular structures. As is known, the water tends to be activated in two forms, which Piccardi calls "T" and "R", which must correspond to two different configurations taken by water molecules in these clusters. We define these as "*super-order quantum states of the liquid*", as the activation, as demonstrated by Giorgio Piccardi, affects not only water but also other polar liquids. In the coming months we will try to ascertain whether it is possible to verify the existence of this phenomenon using computer simulations; studies on the chemical and physical properties of water using supercomputing techniques have already been conducted in recent years at the CSCS (*Swiss Center for Scientific Computing*) in Lugano, and we think it is also possible to investigate the phenomena of activation of water by these techniques. On the basis of these factors identified by Piccardi and the comments above, has developed a new device to treat not only water but also other non-aqueous and aqueous liquid, used for industrial purposes. The goal is to get an intense activation and was independent of the electrical conductivity of the treated liquid, with the highest energy yield possible (the relationship between the amount of activation energy obtained and used in the process). The device developed (patent pending) consists of a "camera capacitor", or a container, crossed the stream of liquid, with a central electrode electrically insulated and an metal cylinder coaxial to said electrode. Between central electrode and the metal cylinder is applied to medium-high voltage (several tens of thousands of volts) to low frequency (of the order of tens of thousands of hertz). The water obtained has activation status "T". Practically, in this device, water (or liquid to be treated) are the dielectric of a capacitor, and there is no conduction of electricity through the liquid. The energy scattered by the dielectric is reasonable to assume that will result, almost quantitatively, the "activation energy". It would, that is, a stream of quasi-particles through the fluid, determined by the braking of electric charges through the dielectric. In fact there has been a strong activation of the water was treated in this way (the experiments were first conducted in a pan of water in which they were surrounded by two metal plates of 10 × 10 cm surface and insulated with a sheath of polyethylene, the whose mutual distance was variable at will, and then with the device described), the state of activation was detected with both the lassic test with bismuth oxichloride, and with precipitated of arsenic sulphide, test to better discriminate the intensity of activation obtained. Moreover it was observed that the formation of different crystalline states of calcium carbonate (previously studied by X-ray diffraction, which allowed us to verify the change in the ratio of calcite, aragonite and vaterite in deposits based on the state of activation) is a phenomenon far more sensitive - for example - of the precipitation of bismuth oxichloride in a more or less voluminous. This is due to a greater or lesser amount of energy needed to alter the shape of crystallization of the precipitate, the amount of energy that is supplied by water activated and stored - in fact - in those clusters through a more or less orderly arrangement of molecules that form they. The application of the field with frequencies of 10 to 30 kHz has also proved considerably more effective, for example, a field of low frequency or DC, in accordance with the expressions that return the amount of energy lost between the plates of a capacitor. Using a very small power (a few watts) we can treat a quantity of water of the order of hundreds of liters, or cubic meter, per hour; the treated water retains the characteristic properties of the activated water for several months, such as, for example, the property not to form adherent scale deposits and not allow the formation of microbial fouling on vessel walls. We also want to bring in the margin a further observation made by studying the industrial processes of water treatment: when it comes to the water with ozone, the water resulting from the treatment is having a marked state of activation. From this it follows that the chemical reaction of ozone decomposition releases energy in a form particularly effective at inducing the phenomenon, which helps to maintain the sterility of the water itself, since, as noted, has hampered the water activated on bacterial and microbial growth in general.

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from samples of activated water and not-activated, and prof. Lino Marchesini, also for making available his laboratory at the Department of Industrial Chemistry in the early studies by the writer on the activation states in the late '80s. The development of the apparatus described in this paper was performed at the Laboratory of *Valeri Consulenza Industriale* in Stabio (Switzerland), with the support of the company *Eurodelta* of Monza (Italy) and Ing. Mauro Marcelletti of Bergamo (Italy), director of that company, which has always believed (and supported) in our research.

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