

The Case of curious scientific oddity and coincidence of simultaneous Absorbance and Transmission at 420nm, relevant to Silver and Water.

Written by Hans Laroo at a special request from Gerald Hancock, Kalayaproducts.com.au for recommended reading.

Abstract

That coincidences in physics come in very small packages is borne out in this short essay. It all started when investigating alternative and superior methods in producing a high grade of colloidal silver. Already swaying away from existing practices using high current and low voltages to low current and elevated voltages. Based on the findings that water being an insulator (dielectric), opposes the flow of DC (direct current. Even half of a milli ampere/hour (500 micro ampere/h) would require at least a potential of 300 volts. But that was only half of the story. Up to that date and still now, colloidal silver products are being produced under ambient light and temperature conditions. As a direct result predominantly ionic silver is produced and consisting of so-called particles in a variety of sizes. My aim was more orientated toward making the so-called colloidal particles as small as possible and preferably all the same or almost the same size, having in mind a mechanism to penetrate and kill biofilm protected bacterial colonies, grown immune to our current arsenal of antibiotics. In order to accomplish such a product required some lateral thinking and perhaps nothing short of a miracle.

Introducing silver:

One of the thoughts came from remembering something picked up from Black & White photography technology: Only violet light exposes its film. Nothing else! A chance article from an amateur astronomical telescope maker complaining that his silvered parabolic glass mirror was not picking up blue stars and his attempt to use aluminium instead. When that did not satisfy him, he chose to place a very thin layer of silver on top of the aluminium and the rest is history. The third piece of the puzzle presented itself by a science article claiming that silver reflects 97% of all visible light and immediately this begged the question, "But what about the 3% that is not reflected"? A short session on a spectrophotometer confirmed that silver absorbs photons at around 420nm. In fact as direct evidence of that at high concentration, the absorption of violet and to a lesser extent indigo and dark blue create a liquid with a yellowish tinge.

Introducing water:

Water is generally understood to absorb much of the electromagnetic spectrum as heat and release heat again during ambient temperature variation, all depending if the temperature of the water is lower or higher than itself. It is part of entropy and Maxwell's Second Law of thermodynamics, which states that heat flows toward areas of a lower temperature, i.e. the heat from a single source of heat, e.g. a burning candle placed in a low temperature room will disperse its heat until a state is reached that the entire room and everything in it, are all of the same temperature. Unfortunately nothing is as simple as that, because this entropy is not linear: different frequencies/wavelengths

are more or less absorbed and in particular Violet and Ultraviolet light, whilst absorbed do not possess thermal but ionising qualities and actually blocking these shorter wave lengths in varying degrees. At wavelengths below 200nm, referred to as vacuum Ultra violet, even water droplets are able to block such wave lengths. It is thus a surprise that from about 417 to 420nm in a narrow region of violet light, depending on its purity and to some extent its temperature, water becomes totally transparent, and giving such water a bluish colour. This fluke of nature is a welcome aid during the process of reducing ionic silver to neutral silver (Photon Electron Transfer) by not blocking that light and letting it through completely unimpeded. Why this is so, I leave for others to ponder on.

Author: Hans Laroo