return to updates

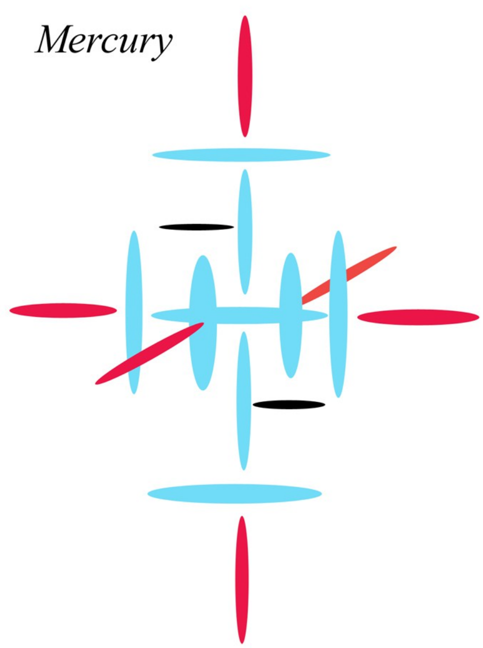
Why Mercury II Iodide acts like it does

by Miles Mathis

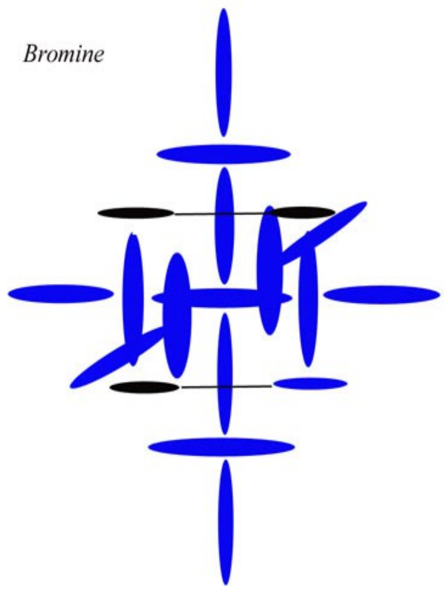
First published August 15, 2019

Reading Faraday recently to solve the Arago Effect gave me another problem to solve, and now here I am to solve it. I noticed Faraday told us that Periodide of Mercury acts strangely, so I looked it up. It is now called Mercury II Iodide or HgI_2. I couldn't find anything online about why this compound conducts as a liquid, insulates as a solid, and does not decompose as a liquid—although the liquid is at a very high temperature. It doesn't really matter, since we know that whatever the current explanation is, it must be wrong. Since they don't know how these elements combine as a matter of nuclear structure and charge streams, they cannot possibly have the right answer. But since I have now diagrammed the nucleus, we can analyze this compound in detail.

If you check my previous papers and diagrams, you will find that Mercury has four protons plugged in all round in the outer level of the nucleus, in slots that can take six.



The red disks represent four protons, and the cyan disks represent six. The black disks represent one. I haven't previously diagrammed Iodine, but I have diagrammed Bromine. Iodine's structure matches Bromine above it, but with a Krypton core instead of an Argon core.



Make the 9-disk core red there and you have Iodine. [Blue represents two protons or one alpha.] Like Bromine, Iodine bonds via those inner positions (with the lines between them). Those inner pillar positions can take two protons on each side, but only one is plugged in at three positions, so Iodine can bond in any of those. You will tell me that since Iodine only has two protons at each pole, in positions that can take four, it can easily bond there. It doesn't have to bond via the inner positions like Bromine. True, but Iodine is strange in that it has more protons pulling charge out than it has pulling in. So its equatorial stream has more *potential* strength than its polar stream. Like Bromine, it has four pulling in from north and south, but 13 pulling out. That is, eight in the carousel level, and five in the inner level. All those can emit charge E/W. And while the carousel level is spinning, the inner level isn't. So in some situations Iodine will have more potential bonding strength E/W than N/S. And it can turn to facilitate such a bond.

Mercury will bond at its north pole, where it has two spots open. The two Iodines can both plug in up there, so we have to angle them for Mercury II Iodide. [Of course Iodine can also bond with Mercury one-to-one, plugging in both north and south—but that isn't what we are looking at here.] The bonds at the north pole are angled because the charge streams of the two Iodines interfere, pushing one another away. Still, at lower temperatures, that is a pretty tight bond, since no holes are left upon. Mercury has two slots open at the north pole, and the Iodines have filled them both. That tight bond gives us a solid, but the wide angle interferes with conduction. Conduction requires long straight lines of charge.

But it is because Iodine is bonding through those tricky inner positions that this gets weird at high temperatures. High temperature means we are feeding a lot of charge through the molecule, and we have seen in many previous papers that high charge from a larger nucleus can subtly re-arrange the outer levels of an adjoining smaller nucleus to accommodate it.

As you can see from the diagram of Bromine above, Bromine doesn't have any free slots in the outer level. Blue is plugging into blue, so all slots are filled. But Iodine has blue in the outer levels and red in the inner levels, so the six main positions in the outer level have two empty slots. Since those strange inner slots are weak to start with (that is what the lines indicate: the protons in those positions are backed out a bit, as I explain here), high energy charge streams can blow them out of there. Since

Mercury is a large nucleus that creates very powerful charge streams, it is more than powerful enough to re-arrange Iodine at close quarters like this. The core cannot be re-arranged, but the outer positions and weak inner positions can be. So the polar charge stream of Mercury pushes the one odd inner proton of Iodine to Iodine's pole, and the compound is gets re-arranged that way. See my previous analysis of Neodymium magnets for a similar structure change.

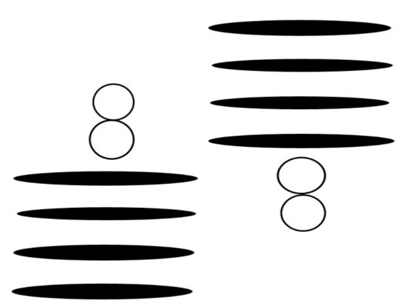
Just to be sure you got it, Iodine has the five protons in the inner positions like Bromine. This is represented in the diagram by the three black disks and the one blue disk. Since the blue disk has an extra proton, that is what I mean by “odd”. It is the one that is bound most weakly, so it will be the first to shift in any re-arrangement.

Since that proton has turned 90 degrees in that shift, and since we now have more protons on the poles, we get far more through-charge with Iodine than before. Remember, through-charge moves straight through the nucleus from pole to pole, south to north. And, since each Iodine now has three protons south and two north, the differential gives us a strong direction for the charge. It knows which way to go. If the poles have equal numbers of protons, that indicates the possibility of magnetism. If the poles are unequal, that indicates the possibility of conduction, since charge is pushed through in one direction. In short, Iodine has become a conductor. And since Mercury and Iodine are now combining pole to pole, instead of pole to inner level, our lines of charge are now strictly linear. The angle is gone. Just to be clear, you don't have the Iodines going to opposite ends of the Mercury. Rather, you now have a line that goes Mercury, Iodine, Iodine, Mercury.

But if we have increased our conduction, why does the compound become a liquid? Shouldn't this re-arrangement create stronger bonds? Surely the liquid state indicates weaker bonds in some way, right?

Well, the Iodine has re-arranged to allow for *more* charge conduction, but more charge doesn't always mean a stronger bond. It indicates more charge through the bond, which is one indication of strength, but there are other indications, as you are about to see. This is explained by the fact that we have moved a proton from the inner level of Iodine to the pole. Since we already had two north and two south, we now have three south and two north. This allows for a linear charge stream and a pole-to-pole bond even with two Iodines for every Mercury, but it has given our bond a sort of wiggle. This is because we no longer have a match-up of prongs and holes. Both Mercury and Iodine have two holes north, but Iodine now has three prongs south, so one prong is out in the breeze. This is a charge leak, and though it is not fatal to the bond, it does cause a weakness. Hence the liquid state.

If you don't know what I mean by “prongs”, return to my paper on Mercury as a liquid, linked above. There I used this diagram to show how Mercury bonds with itself:



Instead of drawing Mercury's outermost positions as one red disk, I drew them as four black disks. Same thing. But since those positions are plugged into a cyan disk, two slots are empty. I draw those as empty holes. So if we bond two Mercurys side to side, we are trying to plug four protons into two holes. We can make the plug, creating the bond, but two protons on each side are left hanging. This is a charge leak and it causes the liquid state. A similar thing happens with Mercury and Iodine in the liquid state, as you see. I call the protons "prongs" in this sort of diagram, since—viewed and drawn from the side—that is what the disks look like. We can visualize the prongs going into the holes, as with a computer cable hookup. That isn't what actually happens, of course, but it is a useful visualization. What happens is that these charge streams align. We have high pressure and low pressure lines in the charge field, caused by the nuclear engine, and the protons act like fans in those lines of charge, pushing the charge along with their real spins.

Despite being a liquid, this Mercury/Iodine compound is not decomposable even at high temperatures, and you can now see why. Despite the bond having a weakness due to the leak, the bond is still quite strong due to the three links creating it all along the line of charge. As a liquid, HgI_2 is linked 4-3-4-3 along the polar bonds, you see.* Although the stepping there creates a liquid, three proton links in a bond will always be hard to decompose.

*If you don't see that, try actually drawing the bonds using my prong-and-hole method.