

Spontaneous Human Combustion (SHC)

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An Arthur C. Clarke comment on spontaneous human combustion (SHC): "There's one mystery I am asked about more than any other - spontaneous human combustion. Some cases still seem to defy explanation, and leave me with a creepy and very unscientific feeling. If there's anything more to spontaneous human combustion, I simply don't want to know."

Some people think SHC is due to "wicking", a process whereby clothing etc. acts like a wick to burn the bodies natural fat. If wicking is actually a valid explanation for spontaneous human combustion, then an experiment should produce similar results using a large ham with bone and skin. How is this for a protocol:

1. Place ham on a roughly 1' by 1' patch of carpet
2. Wrap ham with piece of cloth, e.g. an old shirt
3. Insert birthday cake candle in side of ham through hole in cloth
4. Place all in location safe for fire and smoke, but not in wind
5. Light candle

I think the carpet is overkill, however, since SHC has been observed in a bathroom environment (it burned a hole through a linoleum floor) and deep under skin where no wick was present. However, this approach seems to give SHC (now spontaneous HAM combustion) the best chance.

If the result is not that bone is reduced to a powder or not that a sweet burning sugar smell results, then the results are negative.

Another avenue of research, the underwater spark phenomenon (USP) represents a medium or tool with which to explore for a new source of energy, i.e. an "over unity", "ou", or "excess heat" device. It may represent an environment conducive to events similar to SHC. The USP device does share or can be designed to share within it many characteristics or physical environments similar to previously reported ou phenomena. It is rich in degrees of freedom, operating ranges, and design flexibility.

The question arises, is there any realistic basis for hope that a robust over unity energy solution will be found? I say yes. Aside from all the relatively small heat results published and debated, (e.g. P&F, Patterson, Piantelli, Griggs, Claytor, Bass & CG, pseudospark phenomena, etc.) the phenomenon of spontaneous human combustion (SHC) stands out in my mind as justification for that position. There is police and other witness testimony, taken under oath, and other evidence, including still living victims, coroners reports, and photographic evidence. If the SHC phenomenon is real, and I think from the evidence there is a reasonable probability it is, then there exists a truly robust, water environment, heat generation phenomenon driving it. Burning a human body into white ash, including the bones, with only the body as fuel, and in the presence of 60 percent water, involves a source of heat outside the scope of present knowledge. Let's assume for the moment that some SHC reports are genuine, and see what can be determined from that assumption. Through the normal course of events, nature herself will possibly reveal a few things and even more mysteries to unravel.

Now the question arises, what is a good strategy for a broad Edisonian search of USP? In some

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situations, a good strategy is to throw together as many elements as possible into a single test. This strategy has been employed to some extent in AIDS testing, for example. If you mix the blood for 6 samples together, and then get a negative test for the antibodies, all 6 samples are known to be negative, saving the cost of 5 tests. However, when a positive is obtained, at least 5 more tests must be made, and, unless they are all negative, incurring the cost of an extra test to verify. It is of course possible to do 3 and 3 then, etc. The least expensive testing strategy depends on the expected positive hit rate.

Unfortunately we don't have a situation that simple. It may take a combination of factors together at the same moment to get a positive hit. It is also essential not to throw elements into a test that could force other positive combinations of elements in the test to be quenched or suppressed. Unfortunately also is the fact we do not know what elements are incompatible, i.e. which elements and concentrations might quench a SHC type reaction. However, we do know that the elements and concentrations in the human body are not likely to do that, at least in the special circumstances where it actually happened. We also know it is possible for clothing to cause sparks, thus it is reasonable to assume such a SHC reaction may be caused by sparks or be electrically initiated. Based on some case histories, it is also possible the SHC reaction is initiated by focused or prolonged sunlight, and may be partially due to dehydration. So, light may possibly be a trigger. Minimum element concentrations may be an ignition factor. More importantly, we know that at least at some edge of the envelope of the human condition, the elements in the human body, in natural proportions, are *sufficient* to cause the reaction, and that in those cases nothing in the human body was *sufficient to quench* the reaction until it reached the ends of the extremities, leaving only the lower legs, feet, wrists and hands of the victims.

The main elements in the human body, 95 % by weight, are O, H, C, and N. The remaining elements include Ca and P, another 3% of body weight, and, in order of decreasing amounts, K, Na, Mg, Fe, Zn, Cu, and traces of V, Cr, S, and Se.

The fact that SHC usually leaves behind only the ends of the victims' extremities is an indication that the process must be related in some respect to a critical mass. When fuel becomes too sparse, geometrically speaking, the reaction suddenly stops. One hypothesis that roughly fits this scenario is muon catalyzed fusion. If some cosmic event should cause an intense and focused beam of muons to magically fall from the sky at a particular square yard and hit someone, then maybe only the largest most connected regions of the body could prevent escape of large numbers of muons. Or maybe sufficient heat retention is necessary to sustain the reaction. However, muon catalyzed fusion seems an unlikely explanation, if only because the event would have to occur so fast the body would explode. It is likely there are lots of other wild hypotheses containing pre-conditions for SHC that are not reproducible by or relevant to the USP environments.

We further know that most humans do not spontaneously combust, even when subjected to extreme radiation, immense heat, flames, and light, and extreme sparking conditions, including high voltage electrocution. There must be a very special set of circumstances that triggers the event.

One of the more interesting SHC cases involved a physician whose diet, for long periods, consisted of nothing but shredded wheat and coffee. (I sometimes wonder if maybe he didn't have a banana with that shredded wheat to get his potassium, at least on the fateful day he self immolated.)

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Maybe one approach to making an electrolyte for USP is to burn meat, coffee and shredded wheat in a crucible, soak the ashes in water, and then filter, or..., maybe not filter. It sure would be advantageous to have a chemical analysis of the SHC ashes vs normal human ashes. One thing that bothers me about all this is the fact you never hear about spontaneously combusting cows! If humans can do it why not cows, sheep, birds, fish, worms, etc.? Now not only must pigs fly, they must self barbecue!

One question of interest is whether a solid matrix of some kind is necessary to initiate or sustain a reaction. If so, the only such matrix readily apparent in the human body is the skeleton. Possibly dried bone, or bone meal, or a calcium matrix of some kind, would be of interest to incorporate in a USP test.

It is especially notable that the human body does not naturally contain solid metal. We do have dental fixtures, mercury poisoning, aluminum poisoning (darn those pickle makers that put alum in their pickles!), bone plates, etc., but I don't recall hearing about those things being significant. Also, the living SHC victims did not have the SHC initiate in their mouths, etc. So, it seems safe to assume that a metal electrode is not necessary. If not solid metal, though, what? The capacitive electrode cell is an idea, but without internal metal, then how and where to generate the sparks? Also there is the question of whether metal might subdue a SHC type reaction. If not, then metal electrodes are fine. I wonder if some kind of an insulating membrane or very thin sheet of material between two solutions might be a good regime.

One possibility to consider as a way for SHC to start is microwave or other radiation. Another possibility is direct induction. None of these seem like very likely initiators. Well, except maybe for people located near the end of a military runway...

In addition to the mysteries of the initiation of SHC is the mechanism for sustaining the reaction in a water environment. This does not seem possible to me unless water itself is the fuel. A nuclear reaction like $1\text{H}1 + 16\text{O} \rightarrow 17\text{F}$ is required to sustain this. Also, the reaction must produce further initiating conditions for the next reaction. Beyond that, the reaction must be moderated in some fashion, or else it would be a bang, which it is not. SHC scenes frequently have a sickly sweet smell, like burning sugar. That further indicates to me the heat source is unlikely carbon, not only because of an insufficient quantity, but also because it would be nearly fully converted to CO or CO₂. Any reaction that burns a body and leaves a sweet smell must be very weird.

The reaction $1\text{H}1 + 16\text{O} \rightarrow 17\text{F}$ results in 17F , which has a half life of 64.5 s. 17F beta decays into 17O with an energy of 2.761 MeV, which should be clearly detectable. It is of interest that 17O is stable, and has a 0.04 percent natural abundance.

Well, I have done a fair job here of showing why SHC can not exist. However, there is significant evidence it does. If it does, it offers clues to reaching the energy solution sought. Whether SHC exists or not, SHC consideration provides grist for the idea mill.