

## Cold Fusion

### Abstract

Cold fusion was first discovered in 1988 two weeks before easter. Fusion is the combination of two atoms. The sun fuses hydrogen and helium. For many years mankind has been experimenting in the field of fusion in order to harness its energy efficiently. Cold fusion is made in a test tube at room temperature according to Dr. B. Stanley Pons and Dr. Martin Fleischman, the inventors. As of today, there is no hard evidence of cold fusion at room temperature. When this was first discovered, Pons and Fleischman pointed out that a power source the size of a cigarette lighter could power the entire city and the top 10 feet of Lake Michigan could power the entire world for the next 15,000 years. There still is hope thought that they could create cold fusion and room temperature and Pons and Fleischman are researching it today.

### Detailed Description of Chemical Process

The theory to how this fusion works is the Muon Theory. The muon theory is as follows: Speeding muons knock electrons out of their orbits around deuterium and tritium atoms. Muons replace the electrons and form a smaller atom. This "muo-atom" then captures another nucleus. The muon orbits more tightly around the two captive nuclei leading them to overcome their natural repulsion of each other and fuse. This reaction produces a larger nucleus that almost immediately shatters, releasing energy. It also

frees the muon, which can then repeat the cycle, causing several hundred more such fusions.

The fact that the muon is 207 times heavier than an electron gives support for this theory. A nuclei is orbited by an electron making a mini-solar system. If a muon is shot at the nuclei, it will bump the electrons into a smaller orbit and replace their orbit with muons. This then closes tightly around the atom, crushing the atom and nuclei together close enough to fuse. This creates energy and frees the muon thus starting this sequence all over again until the muon decays, which is about 2 millionths of a second, or sticks to another particle that is ejected by fusion.

Pons and Fleischman have been the only one to record this phenomenon.

They have also been rejected by many because of this rare phenomenon that only they have experienced. Whether or not they did or did not, future experimentation may provide answers to the energy crisis of today.

#### Detailed description of application of process

The impact of such an efficient source of energy would be enormous to say the least. Large, unsafe nuclear powerplants such as the one Smud is operating could be replaced by cold fusion at a small fraction of the cost it is today. A "Puff"(Pons/Utah/Fleischman/ Fusion) engine was supposed to be operating today if they were successful although they have run across many problems. Had a Puff engine been created, it would have to release a minimal amount of radiation for widespread use of it. When they first

reported their results, they predicted that Puff automobiles would already be made public, Puff aircrafts would already be flying overhead, and Puff heating plants would already be installed in homes. They also predicted a Puff powerplant with more than 100M Watts capacity by 1994 and a space rocket by 1995.

#### Impact of application of process on Society

The greatest impact of this Puff era would be the money which would be saved. People were predicted to flock towards this new invention, had it been working. It may still work in the future yet there is little hope in the eyes other scientists. The greatest solution something like this could provide would be its help to the environment. Every day the earth is losing more and more of it's natural, irrevocable recourses.

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