

13 March 2008

By: Gabriel Gache, Science News Editor



Massive amount of alcohol found in Sagittarius B  
jumpingelectrons.com

## [Sagittarius B Contains a Billion Billion Billion Liters of Alcohol](#)

### *Pointing towards the origin of organic substances*

Now here is an ideal place where one could open a pub! Too bad it's 26,000 light years away from Earth, not to talk about the fact that the substance in question is not even drinkable. According to a research conducted back in 2001 by a group of researchers from the National Science Foundation, the Sagittarius B molecular gas cloud contains absolutely massive amounts of vinyl alcohol, which could point towards the origin of complex organic molecules in our galaxy. Sagittarius B is an interstellar cloud of dust and gas located in the vicinity of the center of the Milky Way and contains significant amounts of complex organic compounds, evidence that life may be present somewhere else in the universe, aside Earth. The observations were conducted with the help of the 12 Meter Telescope at Kitt Peak, Arizona. National Radio Astronomy Observatory researcher Barry Turner said: "The discovery of vinyl alcohol is significant, because it gives us an important tool for understanding the formation of complex organic compounds in interstellar space". Here on Earth, vinyl alcohol represents one of the key compounds in intermediating reactions between different organic molecules, and at the same time the only stable isomer of the  $C_2H_4O$  family which can still be found in interstellar space. It is widely believed that gas-phase chemistry dominates most of the reactions between molecules in massive clouds as they collide with one another. Anyway, if this was true, vinyl alcohol and a vast number of other complex substances should not be able to form in sufficient amounts to be detected from such a considerable distance. Some of the molecules of these substances may contain up to six or more atoms, meaning more complex chemical reactions must take place for them to form. For now, the creation and distribution of these complex substances remain a mystery even to the scientists; nonetheless Turner considers that the process could occur in massive clouds of dust and molecular gas in the vicinity of relatively young stars, through the evaporation of icy layers of substance deposited on the surface of dust grains, enabling the creation of a medium substances could interact in, through reactions other than gas-phase chemistry. Upon evaporation, these complex molecules could become more susceptible to light and re-emit electromagnetic wavelengths in the radio spectrum to be detected by radio telescopes here on Earth. The chemical makeup of vinyl alcohol enables it to emit radio frequencies in the 2 and 3 millimeters, signature easily detectable in specific periods of the year.