Invention of Heron Cell to Maintain Constant Electromotive Force

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Elecrolyte chemical cells are still inefficient nowadays, as they suffer from long term reduction in their electromotive force. For this same reason, it’s necessary to come up with a method of maintaining cell’s voltage constant for a considerable period of time by overcoming the structural limitation of electrolyte chemical cell. So, I newly designed cell system named ‘Heron Cell’ using the principle of the Heron's fountain. Heron's fountain principle makes liquid circulate by using atmospheric pressure and potential energy of this last, by that it draws solutions to higher place without additional energy. I investigated electrochemical effects and advantages of Heron Cell and compared it with existing Daniel cell. Heron Cell was designed and manufactured to induce flow and circulation of electrolyte solution based on the movement of water and air as its driving force. As a result, Heron cell’s electromotive force as well as concentration were recorded higher than that of existing Daniel cell. In other words, it was confirmed that the principle applied in Heron Cell was effective for impeding polarization and maintaining the electromotive force of a chemical cell constant. I developed Heron Cell 1 to 3, and finally came up with Heron Cell 4 design to make matters more practical. Heron Cell 4 is smaller and lighter than previous versions and highly advanced in keeping voltage and electrolyte molarity steady. It is expected to contribute to extending the life cycle of a chemical cell when utilized for Energy Storage System like Lead Storage Battery.

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