

# [What cell. the fact that a voltaic](https://assignbuster.com/what-cell-the-fact-that-a-voltaic/)

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What are they? A voltaic cell isalso known as a galvanic cell, it was named/ created byAlessandro Volta (voltaic) and Luigi Galvani (galvanic). It is a typeof cell that makes electrical energy from the chemical reactions thatoccur inside itself.

The chemical reaction that occur inside of thecell is a redox reaction. Examples: batteries inside your TVcontroller, batteries inside flashlight. Examples of types voltaiccells: 1-Alkaline cell 2-Daniell cell 3-Simple cell 4-Lead-acidaccumulator 5-Dry cell. The fact that a voltaic cell can produce energy/ electricity is byusing Zinc (anode) and Copper (cathode) that are connected by a wireand that are put in a solution: CuSO4. When the wire andthe salt bridge (helps to balance the charges in the galvanic cell, it is composed of Na+Cl- and 2 cotton plugsthat won’t let the solution of Na+Cl- ofpouring into the cathode and anode sites) are there, they will allowelectrons to move through the wire(s) that connect(s) Cu (with astrong pull of electrons) to Zn (with a weak pull of electrons) witha LED between the two.

When electrons are in a movement position, they produce or make electricity which will turn the LED on. We said that there was two chemical reactions: reduction andoxidation. The cathode (Cu) part is the site where reduction occursand the anode is where the oxidation occurs. That because theelectrons are moving from Zn to Cu and the Zn2+ that arepresent on the anode site come across to the cathode site and reactwith the Cu2+ to make only Cu ? what happens in theCopper site is a reduction process: Cu2+(aqueous = dissolved in water) + 2e- ? Cu (solid metal)And in the Zinc site is an oxidation process: Zn(solid)? Zn2+ (aqueous) + 2e-Thesetwo half cellscan be called: the reduction half cell and the oxidation half cell. We saw in TP that if you only put 1 Zn and 1 Cu, it won’t provideenough electricity to turn a LED on. So what we did is we took morehalf lemons and connected the 3 Zn and 3 Cu with 4 more wires and itmade the LED turn on with enough electricity that was moving withinthe 4 wires. An electrolytic cell is also happening with redox reaction. Itis where an electric current will make the transfer of the electronsduring/in the redox reaction.

Here, the anode is positively chargedand the cathode is negatively charged. The flow of the electronsduring the redox goes from the positive (anode) to the negativecharge (cathode). The electrolytic cell will convert electricalenergy to chemical energy.

A battery is an electrical energy. It isthe total opposite of a galvanic cell. It is a type of cell that needs energy and is non-spontaneous soforced. An example of electrolytic cell could be electroplating (itis the process of coating one metal with another. Here, the redox occurs in the one and only section, which is wherethe anode and the cathode are together so the equations are: Anode ? oxidation = X- ? X + eAnd Cathode ? oxidation = M+ + e ? M Difference between a voltaic and electrolyticcell1. The Galvanic cell has a salt bridge and the electrolytic doesn’thave one.

2. The Electrolytic cell uses a battery to produce energy and theVoltaic cell uses a light/ LED. 3. They have a different flow of the electrons: Voltaic ? fromnegative (anode) to positive charge (cathode) and Electrolytic ? form positive (anode) to negative charge (cathode). 4. In Galvanic, the energy goes from the Zinc and the Copper to thelight or LED and in Electrolytic, the energy goes from the battery tothe Zinc and Copper.

5. The voltaic has two sections in two different containers (thereduction half cell and the oxidation half cell) and the electrolytichas only one section in one container (redox). 6.

Galvanicconverts chemical energy to electrical power/energy and electrolyticconverts electrical power/energy to chemical energy. 7. Galvanic is a spontaneous and electrolytic is a forcedmechanism/flow. 8.

Areaction generates current (galvanic) and a current drives a reaction(electrolytic)