Types of cells in chemistry



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Galvanic cells are the type of cells in which spontaneous chemical reactions take place that result in the production of electricity. These cells have two different electrodes (anode and cathode). The anode is where oxidation takes place, and the cathode is where reduction occurs.

Contrary to galvanic cells, electrolytic cells require electricity to facilitate non-spontaneous chemical reactions. They are often used in industry to facilitate reactions that do not naturally occur. Here, the anode is positively charged, and the negative electrode is the cathode.

There are 92 naturally occurring elements, each differing from the others in the number of protons and electrons in its atoms. Living organisms, however, are made of only a small selection of these elements, four of which—carbon (C), hydrogen (H), nitrogen (N), and oxygen (O)—make up 96.5% of an organism's weight. This composition differs markedly from that of the nonliving inorganic environment (Figure 2-3) and is evidence of a distinctive type of chemistry. The most common elements in living organisms are listed in Table 2-1 with some of their atomic characteristics.

To understand how atoms bond together to form the molecules that make up living organisms, we have to pay special attention to their electrons. Protons and neutrons are welded tightly to one another in the nucleus and change partners only under extreme conditions—during radioactive decay, for example, or in the interior of the sun or of a nuclear reactor. In living tissues, it is only the electrons of an atom that undergo rearrangements. They form the exterior of an atom and specify the rules of chemistry by which atoms combine to form molecules.





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