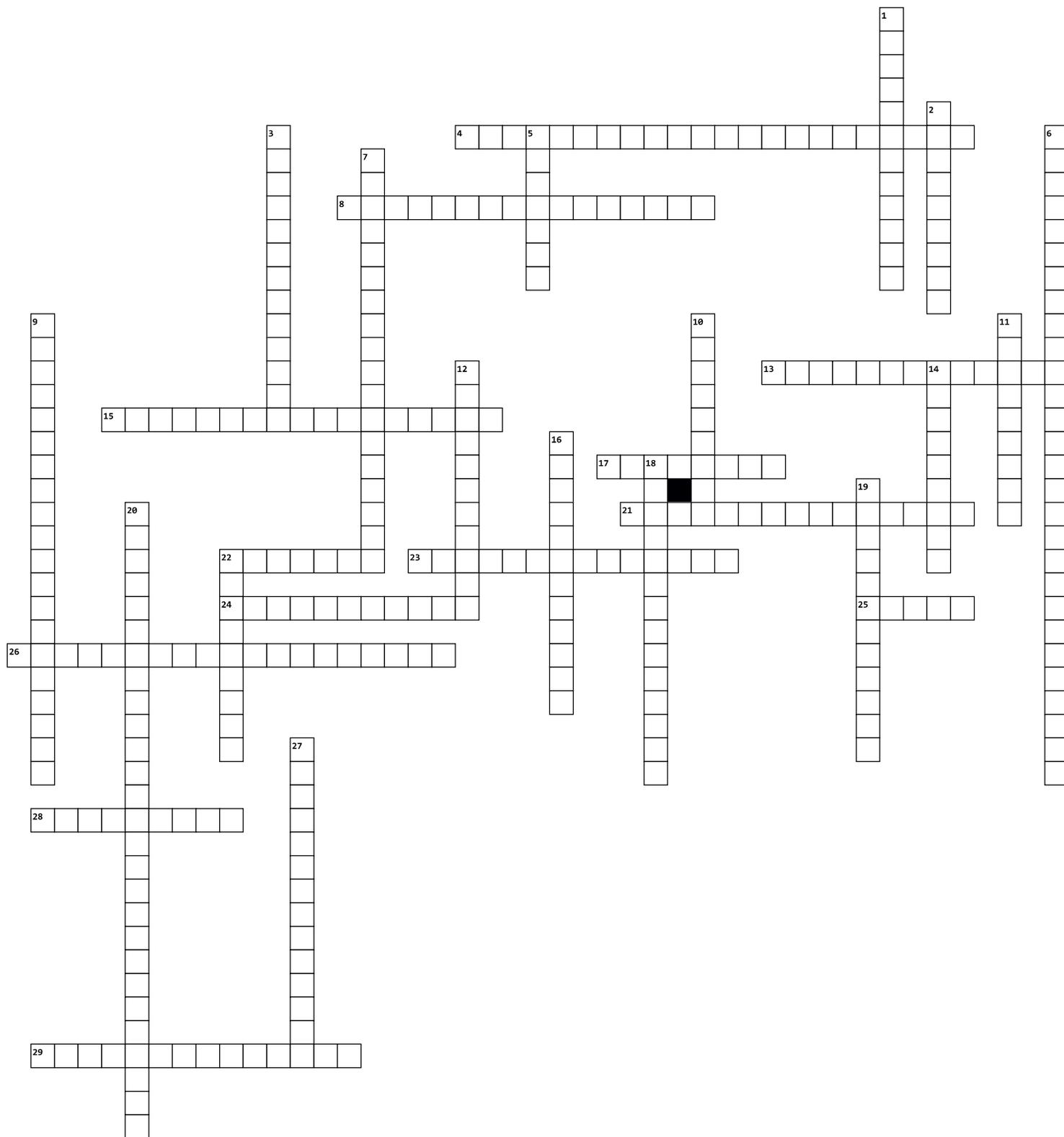


Electrochemistry



Across

4. A list of elements arranged in order of their standard electrode potentials.

Down

1. The process of using electrical energy to drive a non-spontaneous chemical reaction.

- 8.** The branch of chemistry that deals with the relationship between electrical energy and chemical reactions.
- 13.** The extra voltage required in an electrolytic cell to drive a non-spontaneous reaction beyond its theoretical value.
- 15.** An electrochemical cell that uses electrical energy to drive non-spontaneous chemical reactions.
- 17.** Conductance (Conductivity) The ability of an electrolyte solution to conduct electricity, measured in siemens per meter (S/m).
- 21.** A mathematical equation that relates the electrode potential to the concentrations of the reactants and products in a cell.
- 22.** The amount of electric charge carried by one mole of electrons, approximately equal to 96,485 coulombs.
- 23.** A reaction in which oxidation and reduction occur simultaneously, involving the transfer of electrons.
- 24.** A substance that dissociates into ions in solution, allowing the solution to conduct electricity.
- 25.** The electrode where oxidation (loss of electrons) occurs in an electrochemical cell.
- 26.** The ability of an electrode to gain or lose electrons, measured in volts.
- 28.** The deterioration of a metal as a result of chemical reactions with its environment, often involving electrochemical processes.
- 29.** A law that states the limiting molar conductivity of an electrolyte is the sum of the contributions of its individual ions.
- 2.** Cell A rechargeable electrochemical cell, such as a lead-acid battery, which can be recharged and used multiple times.
- 3.** A type of electrochemical cell that generates electrical energy from spontaneous redox reactions.
- 5.** The electrode where reduction (gain of electrons) occurs in an electrochemical cell.
- 6.** The electrode potential of a half-cell under standard conditions (1 M concentration, 298 K temperature, and 1 atm pressure).
- 7.** The conductance of an electrolyte solution divided by its concentration, used to compare the conductive abilities of different electrolytes.
- 9.** A device that generates electrical energy from chemical reactions or uses electrical energy to cause chemical changes.
- 10.** The gain of electrons by a species in a chemical reaction.
- 11.** The loss of electrons by a species in a chemical reaction.
- 12.** A device used in galvanic cells to maintain electrical neutrality by allowing the flow of ions between two half-cells.
- 14.** A conductor through which electric current enters or leaves an electrochemical cell.
- 16.** A non-rechargeable electrochemical cell that provides energy until its reactants are used up (e.g., a dry cell or alkaline battery).
- 18.** A process in which a metal is deposited onto a surface by passing an electric current through an electrolytic solution.
- 19.** of Electrolysis Laws that quantify the relationship between the amount of substance produced or consumed at an electrode and the quantity of electric charge passed through the cell.
- 20.** (SHE) A reference electrode with a defined potential of 0 volts, used as a standard for measuring electrode potentials in electrochemical cells.
- 22.** An electrochemical cell that generates electricity through the continuous reaction of a fuel (such as hydrogen) with an oxidant (such as oxygen).
- 27.** (EMF) The voltage difference between two electrodes in an electrochemical cell.