

FOSS Chemical Interactions Course
Glossary
2007 Edition

Alchemy: The prescientific investigation of substances, including the search for ways to change common metals into gold.

Atmosphere: The layer of gases surrounding a planet.

Atom: The smallest particle of an element.

Atomic number: The number assigned to an element, based on the number of protons in the nucleus of its atom.

Average kinetic energy: Temperature.

Blood plasma: The clear, amber solution that is the liquid portion of blood.

Bond: An attractive force acting between atoms.

Calibrated: Divided into units that correspond to a standard.

Calorie: The unit of energy that will raise the temperature of 1 gram of water 1 degree Celsius.

Carbohydrate: A group of carbon-based nutrients, including sugars and starches.

Carbon dioxide gas: A compound made from carbon and oxygen; CO₂.

Chemical equation: A representation of a chemical reaction using chemical formulas.

Chemical formula: A code that represents the number and kinds of atoms in one particle of a substance.

Chemical property: A characteristic of a substance that determines how it interacts with other substances.

Chemical reaction: A process during which starting substances (reactants) change into new substances (products) with different arrangements of atoms.

Combustion: A chemical reaction, commonly called burning.

Compound: A substance whose particle is made of two or more different kinds of atoms.

Compressed: Reduced in volume as a result of applied pressure.

Concentrated: A solution with a large amount of solute dissolved in a small amount of solvent.

Concentration: The amount of solute dissolved in a measure of solvent.

Condensation: The change of phase from gas to liquid.

Conduction: The transfer of energy (heat) from one particle to another as a result of contact.

Conserved: Unchanged.

Contraction: The reduction of volume of a sample of matter as a result of cooling.

Crust: Earth's hard outer layer of solid rock.

Cyclotron: An instrument used to create new elements.

Density: The ratio of mass and volume in a sample of matter.

Deposit: The change of phase from gas directly to solid.

Dilute: A solution with a small amount of solute dissolved in a large amount of solvent.

Dissolve: To incorporate one substance uniformly into another substance at the particle level.

Dry ice: The solid phase of carbon dioxide.

Electron: A subatomic particle with a negative charge.

Element: A fundamental substance that cannot be broken into simpler substances by chemical or physical processes.

Energy transfer: The movement of energy from one location to another.

Equilibrium: A condition in which a system is experiencing no net change.

Evaporation: The change of phase from liquid to gas.

Expansion: An increase of volume.

Force: A push or a pull.

Freeze: To change phase from liquid to solid.

Fundamental: Simple and basic.

Gas: A phase of matter that has no definite shape or volume. Particles of gas fly independently through space.

Gaseous: Existing in the gas phase.

Global warming: The increase of average temperature worldwide.

Heat of fusion: Heat that causes the solid/liquid phase change without changing the temperature of the substance.

Herbicide: A plant poison.

Hydrocarbon: A group of carbon-based substances made of carbon and hydrogen only.

Insoluble: Not capable of being dissolved. Sand is insoluble in water.

Kinetic energy: Energy of motion.

Lava: Molten rock flowing on Earth's surface.

Lipid: A group of organic substances that includes oils and fats.

Liquid: A phase of matter that has definite volume but no definite shape. Particles of liquid are loosely bonded, but can flow over and around one another.

Mantle: The large rocky part of planet Earth, located between the core and the crust.

Mass: A measure of the quantity of matter.

Matter: Anything that has mass and takes up space.

Melt: To change phase from solid to liquid.

Metal: A group of elements that stretch, bend, and conduct heat and electricity.

Mixture: Two or more substances together.

Molecule: A particle made of two or more atoms that are held together with strong (covalent) bonds.

Neutron: A subatomic particle with no charge.

Nitrogen: A colorless, odorless, gaseous element that makes up about 78% of Earth's atmosphere.

Noble gas: A gaseous element that does not react with other elements.

Nucleus: The center of an atom, composed of protons and neutrons.

Octane: An eight-carbon molecule. Octane is one of the main ingredients in gasoline.

Organic compound: A large class of substances produced by organisms.

Particle: The smallest piece of a substance that is still that substance.

Periodic table of the elements: A way to organize the elements based on atomic number and chemical property.

Phase: The physical appearance of a sample of matter based on the kinetic energy of its particles. Common phases include solid, liquid, and gas.

Phloem: A plant tissue that transports nutrients to all parts of the plant.

Physical property: A characteristic of a substance that can be observed without changing it chemically, such as size, shape, density, and phase.

Potash: An impure form of potassium carbonate.

Precipitate: An insoluble product of a reaction.

Predict: To make an accurate estimation of a future event based on knowledge.

Product: A substance produced in a chemical reaction.

Protein: A group of nitrogen-containing organic substances.

Proton: A subatomic particle that has a positive charge.

Radiation: A form of energy that travels through space.

Radioactivity: Radiation given off by the elements.

Ratio: The relationship between two numbers.

Reactant: A starting substance in a chemical reaction.

Room temperature: The average kinetic energy of the particles in the air and other objects in a room.

Salt: The product that forms when a metal reacts with an acid.

Saturated: A solution with the maximum amount of dissolved solute.

Scanning tunneling microscope (STM): An instrument that can create images of arrays of atoms.

Solid: A phase of matter that has definite volume and definite shape. The particles of a solid are tightly bonded and cannot move around.

Soluble: Capable of being dissolved. Table salt is soluble in water.

Solute: A substance that dissolves in a solvent to form a solution.

Solution: A mixture formed when one substance dissolves in another.

Solvent: A substance in which a solute dissolves to form a solution.

Sublime: To change phase from solid to gas.

Substance: A type of matter defined by a unique particle.

Transparent: Matter through which an image can be seen clearly.

Vibrating: Moving rapidly back and forth.

Volume: A defined quantity of space.

Water vapor: The gas phase of water.

Well-ordered array: A repeating pattern.

Xylem: A plant tissue that transports water and minerals to all parts of the plant.