

Definitions

1. **Corrosive** – A corrosive material is a highly reactive substance that causes obvious damage to living tissue. Corrosives act either directly by chemically destroying the part (oxidation) or indirectly by causing inflammation. Acids and bases are common corrosive materials. Examples of acidic corrosives include hydrochloric acid and sulfuric acid. Examples of basic corrosives include sodium hydroxide and lye.
2. **Flammable solvent** - A liquid having a flash point below 100°F (38°C). Examples of flammable solvents include ethanol, acetone, and xylenes.
3. **Toxic or hazardous chemical** - Any chemical which, through its chemical action on life processes, can cause death, temporary incapacitation, or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere. Examples include corrosives, systemic poisons, carcinogens, mutagens, and embryo toxins.
4. **Acutely toxic or hazardous chemical** – A chemical that causes damage in a relatively short time after a single concentrated dose. Irritation, burns, illness, or death may result. Hydrogen cyanide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, chlorine, and ammonia are examples of acutely toxic poison gases.
5. **Air reactive chemical** – Chemicals that react violently in contact with air or oxygen or with compounds containing oxygen. Sometimes air reactive chemicals are called spontaneously combustible or pyrophoric materials. Pyrophoric materials burst into flame spontaneously upon contact with air or oxygen. Examples include alkali metals (potassium, cesium), finely divided metal dusts (nickel, zinc, titanium), and hydrides (barium hydrides, diborane, diisobutyl aluminum hydride).
6. **Water reactive chemical** – Chemicals that can react violently or vigorously in contact with water, wet surfaces, or even moisture in the air. These chemicals may react to give off a flammable gas (such as hydrogen) or a toxic gas, (such as phosgene) or spontaneously burn or explode. Examples include alkali metals (sodium metal, lithium metal), anhydrides (acetic anhydrides), carbides (calcium carbide), halides (acetyl chloride, titanium chloride, stannous chloride), hydrides (sodium hydride), organometallics (tetramethyl aluminum), oxides (sodium oxides), peroxides (sodium peroxide), and phosphides (aluminum phosphide).
7. **Potentially explosive chemical** – Chemicals that can release tremendous amounts of destructive energy rapidly. Potentially explosive chemicals (PECs), which include peroxidizable organic chemicals, are particularly dangerous because they may explode if subjected to heat, light, friction, or mechanical shock. Examples include organic chemicals that form peroxides through exposure to air or light, hydrated picric acid that becomes dry or becomes contaminated with metals that form metal picrate salts, sodium amide that reacts with air or moisture to form superoxides as evidenced by yellow or brown discoloration, certain alkyl nitrates (e.g., butyl nitrate or propyl nitrate) that become contaminated with nitrogen oxides, and certain normally stable perchlorates (e.g., pyridium perchlorate or tetraethylammonium perchlorate) that become unstable at elevated temperatures.
8. **Biosafety Level 1** - BSL-1 risk group contains biological agents that pose low risk to personnel and the environment. These agents are highly unlikely to cause disease in healthy laboratory workers, animals or plants. Examples of BSL-1 organisms include *Agrobacterium radiobacter*, *Aspergillus niger*, *Escherichia coli* strain K12, *Lactobacillus acidophilus*, *Micrococcus leuteus*, *Pseudomonas fluorescens*, and *Serratia marcescens*. Recombinant DNA is also considered a BSL-1 agent.
9. **Biosafety Level 2** - BSL-2 risk group contains biological agents that pose moderate risk to personnel and the environment. If exposure occurs in a laboratory, the risk of spread is limited and it rarely would cause infection that would lead to serious disease. Effective treatment and preventive measures are available in

the event that an infection occurs. Examples of BSL-2 organisms include *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Salmonella choleraesuis*, human blood and tissue and certain viruses (adenovirus, herpes virus, etc.).

10. **Animal Biosafety Level 1** - ABSL-1 is suitable for animal work that involves well characterized agents that are not known to cause disease in healthy adult humans, and are of minimal potential hazard to laboratory personnel and the environment.
11. **Animal Biosafety Level 2** - ABSL-2 is assigned to animal work involving agents associated with human disease.
12. **Radioactive materials** - Radioactive substances contain unstable atoms which spontaneously degrade, giving off energy in the form of radiation (waves or particles such as gamma and x-rays, alpha and beta particles, and neutrons). Examples include tritium (^3H), Sulphur-35 (^{35}S), phosphorous-32 (^{32}P), and Iodine-125 (^{125}I).
13. **Infrared emitting equipment** – Infrared (IR) light is electromagnetic radiation with a wavelength longer than that of visible light. Examples of equipment that emit IR light include glassblowing, welding, brazing, IR emitting instrument or exposed diodes.
14. **Class 3B laser** - Lasers and laser systems are classified by their ability to cause biological damage to the eye or skin during use. Class 3B lasers emit between 5 and 500 milliWatts of output power in the 302.5 to 106 nanometer wavelength range. They are hazardous to the eye when viewed directly, even when taking aversion responses to light into account. However, scattered light is typically safe to the eye. Higher power 3B lasers are a hazard to the skin, but the natural aversion response to localized heating typically prevents skin burns.
15. **Class 3R laser** - A Class 3R laser is considered safe if handled carefully, with restricted beam viewing. Class 3R lasers emit between 1 and 5 milliWatts of output power in the 302.5 to 106 nanometer wavelength range. Designation “R” indicates “reduced requirements”; requirements that are less stringent than those reserved for 3B lasers. The risk of injury from directly viewing a Class 3R laser beam remains relatively low, but users should take greater care to avoid direct eye exposure, especially when handling invisible output. Typical products which are Class 3R in the visible wavelength range are alignment lasers such as helium-neon (HeNe) lasers and laser diodes, which are used widely in industry, science and medicine.
16. **Class 4 laser** - Class 4 lasers include all lasers with beam power greater than class 3B. By definition, a Class 4 laser can burn the skin, in addition to potentially devastating and permanent eye damage as a result of direct or diffuse beam viewing. These lasers may ignite combustible materials, and thus may represent a fire risk. Class 4 lasers must be equipped with a key switch and a safety interlock.
17. **Cryogenic liquids** - Cryogenic liquids are liquefied gases that are kept in their liquid state at very low temperatures. Each cryogenic liquid has its own specific properties but most cryogenic liquids can be placed into one of three groups: inert gases, flammable gases, and oxygen. Health hazards pertaining associated with cryogenic liquids include extreme cold, asphyxiation, and toxicity.
18. **Nanomaterials** - Engineered nanomaterials are materials designed at the molecular (nanometre) level to take advantage of their small size and novel properties which are generally not seen in their conventional, bulk counterparts. The two main reasons why materials at the nano scale can have different properties are increased relative surface area and new quantum effects. Nanomaterials have a much greater surface area to volume ratio than their conventional forms, which can lead to greater chemical reactivity and affect their strength.