

Mount Holyoke College  
Respiratory Protection Program  
**Chemical Hazard Definitions**

*Oxygen Deficient Atmosphere:* atmosphere containing less than 19.5% oxygen by volume.

*IDLH (Immediately Dangerous to Life and Health):* the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape impairing (e.g., vision impairment) or irreversible health effects.

*Permissible Exposure Limits (PELs):* an acceptable exposure limit established as a regulatory standard by OSHA. Acceptable limits are established as 8-hour time weighted averages (TWA), Short Term Exposure Limits (STEL) (usually a 15-minute average), and Ceiling (maximum not to be exceeded) limits.

*Particulate:* include dust (small pieces of solid), mist (small liquid droplet), and fume (very fine particle released when metal or plastic is heated and quickly cooled).

*Gases:* physical state defined as fluids with a vapor pressure higher than 40 psia (pounds per square inch absolute) at 100°F.

*Vapors:* substances that evaporate from a liquid or solid.

*Organic:* chemical compound containing carbon includes solvents.

*Acid:* a chemical which produces positively charged hydrogen ions in water and a pH less than 7.

*Base:* a chemical which produces negatively charged hydroxyl ions in water and a pH greater than 7.

*Vapor Density:* the relative weight of a vapor relative to air; air's vapor density is defined as 1, vapor densities greater than 1 indicate the vapor is heavier than air and will sink, less than lighter than air and will rise.

*Vapor Pressure:* the pressure exerted by a vapor on the sides of its container at equilibrium. The higher the vapor pressure the more vapors will be produced by the chemical.

*Flash Point:* the minimum temperature of a liquid at which it gives off sufficient vapor to form an ignitable mixture with air near the surface of the liquid. The lower the flash point the greater the fire hazard.

*Lower Flammable Limit:* the minimum proportion of vapor or gas in air below which the vapor will not ignite (too little fuel/too much oxygen).

*Upper Flammable Limit:* the maximum proportion of vapor or gas in air above which the vapor will not ignite (too much fuel/too little air).

*Auto-ignition temperature:* the temperature at which the material will self-ignite with no external ignition source.