

4.3: Industrial Hygiene

Industrial Hygiene

Industrial hygiene is the science of anticipating, recognizing, evaluating, and controlling workplace conditions that may cause workers' injury or illness. Industrial hygienists use environmental monitoring and analytical methods to detect the extent of worker exposure and employ engineering, administrative/work practice controls, and other methods to control potential health hazards.

The operative word is “control”. Once hazards are identified, evaluated and assessed it is the employer’s responsibility to manage and control those hazards applying a control hierarchy. The Hierarchy of Control is the application of a logical and systematic process with a primary goal of eliminating the hazard altogether. In the image below it shows the control hierarchy demonstrated and depicted as a pyramid with divisions of control. The arrow running aside the pyramid denotes increasing effectiveness from the base of the pyramid to the top. The apex of the pyramid in dark green effects the most control through elimination/substitution of a hazard. The next level of control in light green is engineering which requires a physical change to the workplace. The third tier of control in yellow is administrative or work practice controls which requires a worker to do something. The last tier or base of the pyramid in red is personal protective equipment which requires the workers to wear something.

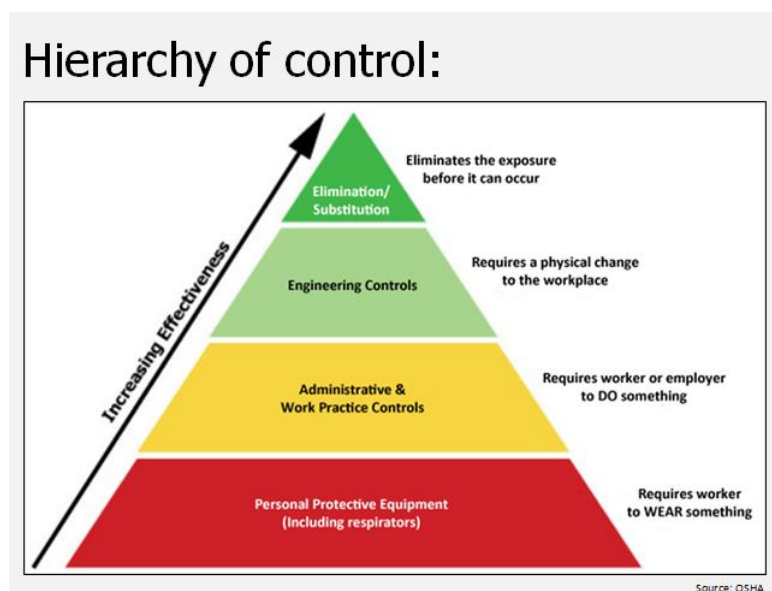


Figure 4.3.1: Hierarchy of Control. (Source; OSHA)

Hazards must be categorized to effectively apply the hierarchy of controls. The five primary categories of hazards are chemical, biological, physical, physiological (ergonomic), and psychological (psycho-social) hazards. Effective control of hazards especially when considering personal protective equipment must consider the category of the hazard, i.e. respirators for aerosolized blood will differ from respirators for pulverized silica. Some hazards can be placed in multiple categories such as gasoline. Gasoline is a chemical hazard and in confined spaces would require respiratory protection but is also a physical hazard in a confined space if fumes exceed lower explosive limits (LELs).

NIOSH along with the American Council of Governmental Industrial Hygienists (ACGIH) provide for the research and development of criteria that establish the safety standards promulgated by OSHA.

Industrial hygiene and the hygienists assisting with applying the science of protecting workers and keeping workplaces safe utilize the following terminology of the discipline to describe health characteristics, impacts and physical parameters. You will see many of the following terms in SDSs, labels on containers, PPE, and other engineering controls.

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