

GLOSSARY OF TERMS

The following is a glossary of occupational safety and health terms, derived from OSHA and NAVOSH regulations. Contact the Industrial Hygienist for questions concerning these or any other terms used in the report.

ACGIH - American Conference of Governmental Industrial Hygienists

A/L - Action Level - Unless otherwise stated in a regulation, the action level is one-half of the permissible exposure limit (PEL) or threshold limit value (TLV). It is the exposure concentration at which control measures and medical surveillance are required.

Acute - Severe, generally short duration, usually crucial, often dangerous and rapidly changing.

Air-Purifying Respirator - A respirator with a filter, sorbent, catalyst, or any combination of these, this removes specific contaminants, such as particulates or organic vapors, from the air when drawn through it.

ANSI - American National Standards Institute - A national consensus standard-developing organization.

Audiogram - Periodic hearing test used to detect shifts in an individual's threshold of hearing.

Bloodborne Pathogens - Pathogenic micro-organisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immune Deficiency Virus (HIV).

Capture Velocity - The air velocity, at a specified distance from a hood, necessary to overcome dispersive forces and capture the contaminant.

C - Ceiling Limit - An exposure to a toxic material which cannot be exceeded for any length of time.

CFR - Code of Federal Regulations - The legal rules and regulations published in the Federal Register by the executive departments and agencies of the Federal Government.

Chronic - Persistent, prolonged, or repeated.

Combustible liquid - A liquid having a flashpoint at or above 100 degrees Fahrenheit and below 200 degrees Fahrenheit.

Concentration - A material or agent not normally present in the atmosphere, e.g., dust, mist, fume, gas, mist, or vapor, which can be harmful, irritating, or a nuisance. Examples of concentration units are:

mg/m³ - milligrams per cubic meter for fumes or dusts

ppm- parts per million for vapors or gases

fibers/cc - fibers per cubic centimeter for asbestos

Contaminant - A material that is not normally present in the atmosphere, which can be harmful, irritating or a nuisance to anyone who breathes it.

Controls - Principles that are applied to prevent or mitigate workplace health hazards. Engineering control methods are the preferred method of hazard abatement. Where engineering controls are not immediately applicable, or are not feasible, administrative controls and/or PPE are appropriate for use as interim hazard control measures.

Engineering controls - These may take the form of:

Elimination - Eliminate the hazard by contracting out a particularly hazardous operation, or by not doing a hazardous job unless it really needs to be done. For example, lead and/or chromate exposure can be avoided by prohibiting mechanical paint removal for "cosmetic" purposes, or removing only enough paint to allow re-coating, rather than removing to bare metal.

Substitution - Substitute a less hazardous work process, equipment or material. Examples of process substitutions are: brush paint instead of spray paint to reduce inhalation exposure to paint solvents and pigments, do hand sanding instead of mechanical sanding to eliminate noise exposure and reduce exposure to particulates. An example of equipment substitution would be to use an electric forklift instead of a diesel forklift in a warehouse to eliminate potential exposure to carbon monoxide. Examples of material substitution are: use less toxic 1,1,1 trichloroethane instead of carbon tetrachloride for solvent degreasing, use lead and chromate free paints to reduce exposures during spray painting and later paint removal. Care must be exercised in any substitution to ensure that the substitute materials are technically acceptable and to avoid introducing a new or unforeseen hazard.

Isolation - Provide a barrier between the hazardous process and the worker who could be affected. This isolation can be in the form of physical barriers, time separation, or distance. Examples include, glove bags or boxes, acoustical containment, semi-automatic equipment that does not require constant attendance (time separation), remote-controlled equipment, or re-locating hazard generating equipment in unmanned areas.

Ventilation - Control of a potentially hazardous airborne substance by ventilation can be accomplished by either diluting the concentration of an airborne hazard by mixing with uncontaminated air, or by removing an airborne hazard at it's source, before it reaches the worker's breathing zone. The second method, local exhaust ventilation, is the preferred

method, and is generally more efficient and economical. General, or dilution, should only be used to control exposure to heat stress or low toxicity contaminants.

Administrative Controls - These may take the form of: limiting access to hazardous areas, rotating personnel to limit time spent working at high hazard operations, preventive maintenance programs to reduce the potential for leakage of hazardous substances, posting of warning signs or labels, developing SOPs detailing exposure reduction practices for a particular job, and training employees to recognize hazards and take appropriate precautionary measures.

Personal Protective Equipment (PPE). This method of hazard control is least preferred. Using PPE can reduce a worker's productivity, it does not reduce the levels of contaminants in the workplace, and it is fallible if inappropriate or badly maintained PPE is used. Nevertheless, there are instances where adequate levels of risk reduction cannot be achieved through other methods, and personal protective devices must be used, either alone or in conjunction with other control measures.

Corrosive Material - Any hazardous material that will cause severe tissue damage by chemical action, materially damage surfaces, or cause a fire when in contact with organic material or certain other chemicals. An acid is a corrosive having a pH less than 7. A base, or caustic, is a corrosive having a pH greater than 7.

dBA - Decibels, A-weighted network - The sound pressure level in decibels, as measured on a sound level meter using the A-weighted network (scale). This network attempts to reflect the human ear's decreased sensitivity to low frequency sounds.

Dust - Small solid particles created by the breaking up of larger particles by processes such as crushing, grinding, or explosion.

EPA - Environmental Protection Agency

Ergonomic Hazards - Workplace conditions that pose a biomechanical stress to a worker's body as a consequence of posture and force requirements, work/rest regimens, repetition rate, or other similar factors. Faulty workstation layout, improper work methods, or improper tools may contribute to such conditions.

Exposure Assessment - Each hazard listed in the Workplace Information section is evaluated. The evaluation includes a qualitative and quantitative review of the hazard, including pertinent monitoring data, the level and frequency of exposure, and the effectiveness of existing control measures. Decisions to identify personnel for medical surveillance, to recommend additional hazard controls, or to specify exposure monitoring is based the exposure assessment. The assessment will be positive or negative.

Rationale for a Negative Determination. A negative determination is issued under any, or a combination of, the conditions listed below:

The worker is not exposed to the hazard because of the effective

design and use of engineering controls.

The worker is not exposed to the hazard at least 15 days per quarter or 30 days per year, and the hazard is not separately regulated by specific Navy or Federal standards.

Based upon the results of workplace and exposure monitoring, the worker(s) are unlikely to be exposed to above the Action Level.

Monitoring results of similar operations performed under similar or worse conditions were below the Action Level. The sampling size must be statistically significant.

Based upon a combination of the experience of the industrial hygienist with the hazard, literature reviews, low toxicity, physical characteristics (e.g.: low volatility), limited frequency and/or duration of the job, effective and reliable use of engineering or other control measures, the worker(s) are unlikely to be exposed above the Action Level.

Panel Decisions. Sometimes hazards do not fit neatly into the decision process as described above. When an industrial hygienist has difficulty in making an exposure assessment, a panel of the IH Department industrial hygienists will convene and discuss the issue. Infrequent or sub-action level exposure to OSHA or ACGIH listed carcinogens, or USN listed reproductive hazards are examples in which a panel decision might be needed to assess exposure.

Flammable liquid - Any liquid having a flashpoint less than 100 Degrees Fahrenheit.

Flashpoint - The minimum temperature of a flammable liquid at which it gives off sufficient vapor to form an ignitable mixture with air near the surface of the liquid.

Friable Asbestos - Loosely bound asbestos whose substrate may easily crumble or pulverize. Friable asbestos is a health hazard because it easily releases fibers into the air.

Fumes - Fumes are formed when a volatilized solid metals condenses in cool air. The solid particle fumes are extremely fine - usually less than 1.0 micrometer in diameter. Examples of processes that generate fumes include; zinc socket pouring, smelting, furnace work, foundry operations, welding, and torch soldering.

Gas - Diffuse, formless fluid normally in a gaseous state. Under normal conditions of temperature and pressure, a gas tends to occupy the entire space uniformly.

Hazard - A workplace condition that may result in injury, health impairment, illness, disease, or death to a worker who is exposed to the condition, or damage or loss of property/equipment.

HM - Hazardous material - Any chemical or material that is a physical hazard or a health hazard, or which during end use, storage, transportation or disposal can be classified as a Hazardous Waste. This definition

includes aerosol containers, explosives, toxic, irritant, or sensitizing chemicals, poisonous or infectious substances, flammable liquids or solids, corrosives, combustible liquids, pesticides, oxidizers, reactives, radioactive substances, and compressed gases.

Heat Stress - Any combination of air temperature, thermal radiation, humidity, airflow, and workload that may stress the body as it attempts to regulate body temperature. Heat stress becomes excessive when the body's capability to adjust is exceeded, resulting in an increase of body temperature.

HEPA - High-efficiency particulate air filter - A filter capable of trapping and retaining at least 99.97% of 0.3 micrometer diameter particles. The most recent designations for HEPA filters are N100 (not oil resistant), R100 (oil resistant), and P100 (oil proof).

Industrial Hygiene - The science that deals with the recognition, evaluation and control of potential health hazards in the work environment.

Ionizing Radiation - Radiation with sufficient energy to strip electrons from atoms in the media through which it passes. Examples include alpha particles, beta particles, X-rays and gamma rays.

Medical Surveillance - The pre-placement and periodic evaluation of body functions to ascertain the health status of personnel exposed to significant concentrations of toxic substances (for example, decreased lung function, dermatitis, abnormal blood count); allowing early detection of adverse health effects on the individual.

Mist - Finely divided liquid droplets suspended in air and generated by condensation or by atomization.

MSDS - Material Safety Data Sheet - Written or printed data concerning a Hazardous Material, prepared by the manufacturer, in accordance with paragraph (g) of 29 CFR 1910.1200, the OSHA Hazard Communication Standard.

NAVOSH - Navy Occupational Safety and Health.

NEHC - Navy Environmental Health Center.

NIOSH - National Institute for Occupational Safety and Health.

Non-ionizing Radiation - Radiation that is not capable of stripping electrons from atoms in the media through which it passes. Examples include radiowaves and microwaves (Radiofrequency radiation -RFR), visible light, ultraviolet and infrared radiation.

Occupational Health - The multidisciplinary field of general preventative medicine that is concerned with the prevention and/or treatment of illness induced by factors in the workplace environment. The major disciplines involved are occupational medicine, occupational health nursing, epidemiology, toxicology, industrial hygiene, and health physics.

OV - Organic vapor filter - Respirator filter which uses a sorbent to remove chemical organic vapors from the ambient air.

OSHA - Occupational Safety and Health Administration, Department of Labor.

Oxidizers - Any material that readily yields oxygen for combustion.

Particulate - Any fine solid or liquid particles such as dust, fog, fumes, mist, smoke or spray. Particulate matter suspended in air is commonly known as an aerosol.

PEL - Permissible Exposure Limit - The PEL-TWA is considered the maximum concentration to which employees can be safely exposed to a hazardous airborne contaminant up to eight-hours per day, 40 hours per week. PELs are normally averaged, or time-weighted, over an 8-hour period.

PPE - Personal Protective Equipment - A device or item to be worn, used, or put in place for the safety or protection of an individual when performing work assignments or in entering hazardous areas. PPE includes hearing protection, eye protection, head protection, hand protection, respiratory protection, whole body or partial body protection, foot protection, or other protection worn to prevent injury or exposure.

Reactive - A chemical that can vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or high temperature.

Reproductive hazard - Any occupational stressor (biological, chemical, or physical) that has the potential to adversely affect the human reproductive process.

Solvent - A substance, most commonly water, but often an organic compound, which is used to dissolve another substance.

Standard - A rule, established by a competent authority, which designates safe and healthful conditions or practices under which work must be performed to prevent injury, occupational illness, or property damage.

Stressor - See "Toxic substance or harmful physical agent".

STEL - Short Term Exposure Limit - The concentration to which it is believed that workers can be exposed continuously for a short period of time, usually 15 minutes, without suffering from irritation, chronic or irreversible tissue damage, or narcosis of sufficient degree to increase the likelihood of accidental injury, impair self-rescue, or materially reduce work efficiency; provided that the 8-hr. TWA is not exceeded.

TLV - Threshold Limit Value - Established by the American Conference of Governmental Industrial Hygienists (ACGIH), TLVs refer to airborne concentrations of a substance and represent conditions under which employees may be exposed day after day without adverse effect.

Toxic substance or harmful physical agent - Any chemical substance, biological agent, or physical stress, noise, heat, cold, vibration, repetitive motion, ionizing and non-ionizing radiation, hypo-hyperbaric pressure, etc., which:

Is regulated by any NAVOSH standard or federal law due to hazard to health.

Is listed in the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemicals.

TWA - Time-weighted average - The average concentration of a contaminant in air during a specific period of time, usually eight hours.

UCL - Upper Confidence Limit - A statistical calculation is applied to air sampling results to correct for random sampling and analysis errors, and random environmental fluctuations. The 95% UCL is a statistically calculated value that provides 95% confidence that the true average exposure is below that value.

Vapor - Gaseous form of a chemical that is normally in the solid or liquid state at room temperature, and evaporates into the ambient air. Examples of substances that produce vapors are degreasers, fuels, hydraulic fluids, paints, thinners, and dry cleaning fluids. The rate of evaporation is affected by the vapor pressure of the chemical, elevated temperature, and decreased pressure.

Workplace and Exposure monitoring - Measurement of the amount of contaminant or physical stress reaching the worker in the environment. Also includes monitoring the effectiveness of ventilation systems or other engineering controls.