

Glossary

Absorbed dose – the actual amount of the exposed dose that enters the body

Absorption - The process of taking in, as when a sponge takes up water. Chemicals can be absorbed through the skin into the bloodstream and then transported to other organs. Chemicals can also be absorbed into the bloodstream after breathing or swallowing.

Acute - Occurring over a short time, usually a few minutes or hours. An *acute* exposure can result in short-term or long-term health effects. An *acute* effect happens a short time (up to 1 year) after exposure.

Additivity – the response to a combination of two or more chemicals is the sum of the expected individual responses

Administered dose – the quantity administered orally or by injection (usually in testing or medicine)

Antagonism – the response to a combination of two or more chemicals is less than the sum of the expected individual responses

Bioaccumulate - Process which harmful substances move through the food chain, by one creature eating another, accumulating (at higher concentrations) in the top carnivores.

Bioassay – an experiment in which test organisms are exposed to different concentration of something which may affect the activity of the organism. The activity (response) is measured as a function of the different exposure conditions

Bioconcentration – The accumulation of a chemical in tissues of an organism to levels greater than in the environment in which the organism lives.

Carcinogen - Any substance that may produce cancer

Carcinogenicity – a complex multistage process of abnormal cell growth and differentiation that can lead to cancer. Usually at least two stages and toxicants are involved: initiation in which a normal cell undergoes irreversible changes and promotion in which the initiated cells are stimulated to progress to cancer.

Chronic - Occurring over a long period of time (more than 1 year).

Concentration - The amount of a specific substance mixed into a given volume of air or liquid.

Contaminant - Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil.

Dermal - Referring to the skin. *Dermal* absorption means absorption through the skin.

Developmental toxicity – adverse effects occur at the embryo or developing fetus stage of human development.

Dose - The amount of substance to which a person is exposed. *Dose* often takes body weight into account.

Ecotoxicology – the study of the effects of toxic substances on individual organisms, populations, and communities in specific environments. The emphasis is on natural communities not human beings.

Environment - The sum of all external conditions affecting the life, development and survival of an organism.

Environmental toxicology – the study of the toxicology of those substances or physical agents which are encountered in the environment

Epidemiology - The study of the occurrence and causes of health effects in human populations. An epidemiological study often compares two groups of people who are alike except for one factor, such as exposure to a chemical or the presence of a health effect. The investigators try to determine if any factor is associated with the health effect.

Exposure - Contact with a chemical by swallowing, by breathing, or by direct contact (such as through the skin or eyes). *Exposure* may be short term (acute) or long term (chronic).

Genetic toxicity – damage to DNA with a consequent altered genetic expression. This is also referred to as mutagenesis. The genetic change is a mutation and the causative agent is a mutagen. The change may be heritable (a mutation in a germ cell) or not (a mutation in a somatic cell).

Hazard – capability of a substance to cause an adverse effect

Ingestion - Swallowing (such as eating or drinking). Chemicals can get in or on food, drink, utensils, cigarettes, or hands where they can be ingested. After *ingestion*, chemicals can be absorbed into the blood and distributed throughout the body.

Inhalation - Breathing. Exposure may occur from inhaling contaminants because they can be deposited in the lungs, taken into the blood, or both.

Inorganic toxic agent – toxic agents that are elements or inorganic compounds

Irritant - A substance that can cause irritation of the skin, eyes, or respiratory system. Effects may be acute from a single high level exposure, or chronic from repeated low-level exposures.

Latency - Time from the first exposure of a chemical until the appearance of a toxic effect.

LD₅₀ – Lethal dose for 50% of the individuals

Organic toxic agent – toxic agents that are organic compounds

Poison – toxicant that causes immediate death or illness when experienced in very small amounts

Potential – the response to a combination of a toxic and a non-toxic chemical is greater than expected for the toxic chemical

ppb - Parts per billion, a measure of concentration, such as parts of a chemical per billion parts of air or water. Ppb is one thousand times smaller than ppm

ppm - Parts per million, a measure of concentration, such as parts of a substance per million parts of air. PELs and TLVs are often expressed in ppm.

Risk – probability that the hazard will occur under specific exposure conditions

Risk assessment – the process by which hazard, exposure, and risks are determined

Risk management – the process of weighing policy alternatives and selecting the most appropriate regulatory action based on the results of risk assessment and social, economic, and political concerns

Specific Organ or tissue toxins – toxin that affects only specific organs or tissues; these are called the *target organs* or *target tissues*

Synergism – the response to a combination of two or more chemicals is greater than the sum of the expected individual responses

Toxicant – substances that produce adverse biological effects *of any nature*; may be chemical or physical in nature; effects may be of various types (*acute, chronic, etc*)

Toxicity - The degree to which a substance or mixture of substances can harm humans or animals. Acute toxicity involves harmful effects in an organism through a single or short-term exposure. Chronic toxicity is the ability of a substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated or continuous exposure sometimes lasting for the entire life of the exposed organism. Subchronic toxicity is the ability of the substance to cause effects for more than one year but less than the lifetime of the exposed organism.

Toxicology – Study of the adverse effects of chemicals or physical agents on living systems.

Toxin – A harmful substance or agent that may injure an exposed organism.