

# Chemical Glossary

<i>Chemical Formula</i>	<i>Structural Formula</i>	<i>Chemical Name</i>
AsH <sub>3</sub>	AsH <sub>3</sub>	Arsine
As <sub>2</sub> O <sub>3</sub>	As <sub>2</sub> O <sub>3</sub>	Arsenic trioxide
CHCl <sub>2</sub> NO	ClC[NOH]Cl	Phosgene oxime
CHN	HCN	Hydrogen cyanide
CH <sub>2</sub> Cl <sub>2</sub>	CH <sub>2</sub> Cl <sub>2</sub>	Methylene chloride
CH <sub>2</sub> O	HCHO	Formaldehyde
CH <sub>3</sub> Br	CH <sub>3</sub> Br	Methyl bromide
C <sub>2</sub> Cl <sub>4</sub>	Cl <sub>2</sub> CCCl <sub>2</sub>	Tetrachloroethylene
C <sub>2</sub> HCl <sub>3</sub>	ClCHCCl <sub>2</sub>	Trichloroethylene
C <sub>2</sub> H <sub>3</sub> Cl	CH <sub>2</sub> CHCl	Vinyl chloride
C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>	CH <sub>3</sub> CCl <sub>3</sub>	1,1,1-Trichloroethane
C <sub>2</sub> H <sub>4</sub> O	[CH <sub>2</sub> ] <sub>2</sub> O	Ethylene oxide
C <sub>2</sub> H <sub>6</sub> O <sub>2</sub>	HO[CH <sub>2</sub> ] <sub>2</sub> OH	Ethylene glycol
C <sub>3</sub> H <sub>3</sub> N	CH <sub>2</sub> CHCN	Acrylonitrile
C <sub>4</sub> H <sub>6</sub>	CH <sub>2</sub> [CH] <sub>2</sub> CH <sub>2</sub>	1,3-Butadiene
C <sub>6</sub> H <sub>6</sub>	C <sub>6</sub> H <sub>6</sub>	Benzene
C <sub>6</sub> H <sub>6</sub> O	C <sub>6</sub> H <sub>5</sub> -OH	Phenol
C <sub>6</sub> H <sub>7</sub> N	C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub>	Aniline
C <sub>7</sub> H <sub>8</sub>	C <sub>6</sub> H <sub>5</sub> -CH <sub>3</sub>	Toluene
C <sub>8</sub> H <sub>10</sub>	CH <sub>3</sub> -C <sub>6</sub> H <sub>4</sub> -CH <sub>3</sub>	Xylene
C <sub>9</sub> H <sub>6</sub> N <sub>2</sub> O <sub>2</sub>	CH <sub>3</sub> C <sub>6</sub> H <sub>3</sub> [NCO] <sub>2</sub>	Toluene diisocyanate
C <sub>10</sub> H <sub>6</sub> Cl <sub>8</sub>	C <sub>10</sub> H <sub>6</sub> Cl <sub>8</sub>	Chlordane
C <sub>10</sub> H <sub>14</sub> NO <sub>5</sub> PS	[C <sub>2</sub> H <sub>5</sub> O] <sub>2</sub> P[S]OC <sub>6</sub> H <sub>4</sub> NO <sub>2</sub>	Parathion
COCl <sub>2</sub>	COCl <sub>2</sub>	Phosgene
Cl <sub>2</sub>	Cl <sub>2</sub>	Chlorine
HCl	HCl	Hydrogen chloride
HF	HF	Hydrogen fluoride
Hg	Hg	Mercury
H <sub>2</sub> O <sub>2</sub>	H <sub>2</sub> O <sub>2</sub>	Hydrogen peroxide
H <sub>2</sub> S	H <sub>2</sub> S	Hydrogen sulfide
NH <sub>3</sub>	NH <sub>3</sub>	Ammonia
NO <sub>x</sub>	NO <sub>x</sub>	Nitrogen oxides
PH <sub>3</sub>	PH <sub>3</sub>	Phosphine
NaOH	NaOH	Sodium hydroxide
SO <sub>2</sub>	O <sub>2</sub> S	Sulfur dioxide



## Chemical Index

Listed below are names of chemical protocols and their synonyms. Subjects of chemical protocols are in boldface italics (e.g., *Arsine*)

**Acetylene trichloride** *See* Trichloroethylene

**Acrylonitrile**

**Alkron** *See* Parathion

**Alleron** *See* Parathion

**Aminobenzene** *See* Aniline

**Aminophen** *See* Aniline

**Ammonia**

**Ammonia gas** *See* Ammonia

**Ammonia solution** *See* Ammonia

**Ammonium hydroxide** *See* Ammonia

**Amprolenne** *See* Methylene oxide

**AN** *See* Acrylonitrile

**Anammonide** *See* Hydrogen cyanide

**Anhydrous ammonia** *See* Ammonia

**Aniline**

**Aqueous ammonia** *See* Ammonia

**Arsenic hydride** *See* Arsine

**Arsenic trihydride** *See* Arsine

**Arsenic trioxide**

**Arseniuretted hydrogen** *See* Arsine

**Arsenous acid** *See* Arsenic trioxide

**Arsenous oxide** *See* Arsenic trioxide

**Arsenous hydride** *See* Arsine

**Arsine**

**Arylamine** *See* Aniline

**Benzene**

**Benzenamine** *See* Aniline

**Benzenol** *See* Phenol

**Benzol** *See* Benzene

**Bis(beta-chloroethyl) sulfide** *See* Blister agent (H, HD, HT)

**Bis(2-chloroethyl) sulfide** *See* Blister agent (H, HD, HT)

**Bis(2-chloroethyl)ethylamine** *See* Blister agent (HN1, HN2, HN3)

**Bis(2-chloroethyl)methylamine** *See* Blister agent (HN1, HN2, HN3)

**Blister Agent (H, HD, HT)**

**Blister Agent (HN1, HN2, HN3)**

**Blister Agent (HL, L)**

**Bromoethane** *See* Methyl bromide

**1,3-Butadiene**

**Bivinyll** *See* 1,3-Butadiene

**C-100** *See* Chlordane

**Carbolic acid** *See* Phenol

**Carbon oxychloride** *See* Phosgene

**Carbonic acid dichloride** *See* Phosgene

**Carbonic dichloride** *See* Phosgene

**Carbonyl chloride** *See* Phosgene

**Caustic soda** *See* Sodium hydroxide

**Caryolysin** *See* Blister agent (HN1, HN2, HN3)

**CD-68** *See* Chlordane

**Chlordan** *See* Chlordane

**Chlordane**

**Chlorine**

**Chlor-Kil** *See* Chlordane

**Chlormethine** *See* Blister agent (HN1, HN2, HN3)

**1-Chloro-2(beta-chloroethylthio)ethane** *See* Blister agent (H, HD, HT)

**2-Chloro-N-(2-chloroethyl)-N-ethylethanamine** *See* Blister agent (HN1, HN2, HN3)

**Chloroethene** *See* 1,1,1-Trichloroethane

**Chloroethylene** *See* vinyl chloride

**Chloroformyl chloride** *See* Phosgene

**Chlorohydric acid** *See* Hydrogen chloride

**2-Chloro-N,N-bis(2-chloroethyl)ethanamine** *See* Blister agent (HN1, HN2, HN3)

**Coal tar naptha** *See* Benzene

**CX** *See* Phosgene oxime

**Cyanoethylene** *See* Acrylonitrile

**Cyclohexatriene** *See* Benzene

**Danthion** *See* Parathion

**2,2'-Dichloroethyl sulfide** *See* Blister agent (H, HD, HT)

**Di-2-chloroethyl sulfide** *See* Blister agent (H, HD, HT)

**Dichloromethane** *See* Methylene chloride

**2,2'-Dichloro-N-methyldiethylamine** *See* Blister agent (HN1, HN2, HN3)

**Dichloren** *See* Blister agent (HN1, HN2, HN3)

**Dichloroformoxime** *See* Phosgene oxime.

**2,2'-Dichlorotriethylamine** *See* Blister agent (HN1, HN2, HN3)

**Dihydrogen dioxide** *See* Hydrogen peroxide

**Dihydrogen sulfide** *See* Hydrogen sulfide

**Diisocyanatotoluene** *See* Toluene diisocyanate

**Dimethylbenzene** *See* Xylene

**Dimethylene oxide** *See* Ethylene oxide

**Dinitrogen tetroxide** *See* Nitrogen oxides

**DNTP** *See* Parathion

- DPP** *See* Parathion  
**E-605** *See* Parathion  
**Epoxyethane** *See* Ethylene oxide  
**1,2-Ethanediol** *See* Ethylene glycol  
**Ethyl-S** *See* Blister agent (HN1, HN2, HN3)  
**Ethylbis(2-chloroethyl)amine** *See* Blister agent (HN1, HN2, HN3)  
**Ethyl parathion** *See* Parathion  
**Ethylene glycol**  
**Ethylene oxide**  
**Ethylene tetrachloride** *See* Tetrachloroethylene  
**Ethylene trichloride** *See* Trichloroethylene  
**Ethynyl trichloride** *See* Trichloroethylene  
**Etilon** *See* Parathion  
**ETO** *See* Ethylene oxide  
**Fluoric acid** *See* Hydrogen fluoride  
**Fluorine monohydride** *See* Hydrogen fluoride  
**Formaldehyde**  
**Formalin** *See* Formaldehyde  
**Formic aldehyde** *See* Formaldehyde  
**Formonitrile** *See* Hydrogen cyanide  
**Gasoline**  
**Gas** *See* Gasoline  
**HL** *See* Blister agent (HL, L)  
**HN1** *See* Blister agent (HN1, HN2, HN3)  
**HN2** *See* Blister agent (HN1, HN2, HN3)  
**HN3** *See* Blister agent (HN1, HN2, HN3)  
**Hydrochloric acid** *See* Hydrogen chloride  
**Hydrocyanic acid** *See* Hydrogen cyanide  
**Hydrofluoric acid** *See* Hydrogen fluoride  
**Hydrofluoride** *See* Hydrogen fluoride  
**Hydrogen arsenide** *See* Arsine  
**Hydrogen chloride**  
**Hydrogen cyanide**  
**Hydrogen dioxide** *See* Hydrogen peroxide  
**Hydrogen fluoride**  
**Hydrogen peroxide**  
**Hydrogen phosphide** *See* Phosphine  
**Hydrogen sulfide**  
**Hydroperoxide** *See* Hydrogen peroxide  
**Hydroxybenzene** *See* Phenol  
**Iprit** *See* Blister agent (H, HD, HT)  
**Iscobrome** *See* Methyl bromide  
**Kampstoff “Lost”** *See* Blister agent (H, HD, HT)  
**L** *See* Blister agent (HL, L)  
**Lewisite** *See* Blister agent (HL, L)  
**Liquid ammonia** *See* Ammonia  
**Lye** *See* Sodium hydroxide  
**MBA** *See* Blister agent (HN1, HN2, HN3)  
**Mechlorethamine** *See* Blister agent (HN1, HN2, HN3)  
**Mercury**  
**Methanal** *See* Formaldehyde  
**Methane dichloride** *See* Methylene chloride  
**Methyl aldehyde** *See* Formaldehyde  
**Methyl benzene** *See* Toluene  
**Methyl benzol** *See* Toluene  
**Methyl bromide**  
**Methylchloroform** *See* 1,1,1-Trichloroethane  
**Methyl toluene** *See* Xylene  
**Methylene bichloride** *See* Methylene chloride  
**Methylene chloride**  
**Methylene dichloride** *See* Methylene chloride  
**Methylene oxide** *See* Formaldehyde  
**Mixed xylenes** *See* Xylene  
**Molecular chlorine** *See* Chlorine  
**Monobromomethane** *See* Methyl bromide  
**Monohydride** *See* Hydrogen fluoride  
**Monohydroxybenzene** *See* Phenol  
**Mononitrogen monoxide** *See* Nitrogen oxides  
**Monophenol** *See* Phenol  
**Motor fuel** *See* Gasoline  
**Muriatric acid** *See* Hydrogen chloride  
**Mustard gas** *See* Blister agent (H, HD, HT)  
**Mustard-Lewisite** *See* Blister agent (HL, L)  
**Mustine** *See* Blister agent (HN1, HN2, HN3)  
**Nerve agent (GA, GB, GD, VX)**  
**Nitric oxide** *See* Nitrogen oxides  
**Nitrogen dioxide** *See* Nitrogen oxides  
**Nitrogen monoxide** *See* Nitrogen oxides  
**Nitrogen peroxide** *See* Nitrogen oxides  
**Nitrogen tetroxide** *See* Nitrogen oxides

- NTO** *See* Nitrogen oxides  
**Nitrogen fumes** *See* Nitrogen oxides  
**Nitrous fumes** *See* Nitrogen oxides  
**Nitrogen oxides**  
**Octachlor** *See* Chlordane  
**Oxirane** *See* Ethylene oxide  
**Oxacyclopropane** *See* Ethylene oxide  
**Oxomethane** *See* Formaldehyde  
**Paraform** *See* Formaldehyde  
**Parathion**  
**Perc** *See* Tetrachloroethylene  
**Perchloroethylene** *See* Tetrachloroethylene  
**Peroxide** *See* Hydrogen peroxide  
**Petrol** *See* Gasoline  
**Phenic acid** *See* Phenol  
**Phenol**  
**Phenyl alcohol** *See* Phenol  
**Phenyl hydroxide** *See* Phenol  
**Phenylic acid** *See* Phenol  
**Phenylic alcohol** *See* Phenol  
**Peroxide** *See* Hydrogen peroxide  
**Phenyl hydride** *See* Benzene  
**Phenylamine** *See* Aniline  
**Phenylmethane** *See* Toluene  
**Phosgene**  
**Phosgene oxime**  
**Phosphine**  
**Phosphorus hydride** *See* Phosphine  
**Phosphorus trihydride** *See* Phosphine  
**Phosphoretted hydrogen** *See* Phosphine  
**Propenenitrile** *See* Acrylonitrile  
**Prussic acid** *See* Hydrogen cyanide  
**Pyrrolyene** *See* 1,3-Butadiene  
**Quick silver** *See* Mercury  
**Sarin** *See* Nerve agent (GA, GB, GD, VX)  
**Senfgas** *See* Blister agent (H, HD, HT)  
**Sewer gas** *See* Hydrogen sulfide  
**Soda lye** *See* Sodium hydroxide  
**Sodium hydrate** *See* Sodium hydroxide  
**Sodium hydroxide**  
**Soman** *See* Nerve agent (GA, GB, GD, VX)  
**Spirits of salt** *See* Hydrogen chloride  
**S-yperite** *See* Blister agent (H, HD, HT)  
**Stathion** *See* Parathion  
**Stink damp** *See* Hydrogen sulfide  
**Sulfur dioxide**  
**Sulfur hydride** *See* Hydrogen sulfide  
**Sulfur mustard agent H** *See* Blister agent (H, HD, HT)  
**Sulfur mustard agent HD** *See* Blister agent (H, HD, HT)  
**Sulfur mustard agent HT** *See* Blister agent (H, HD, HT)  
**Sulfur mustards** *See* Blister agent (H, HD, HT)  
**Sulphos** *See* Parathion  
**Sulfuretted hydrogen** *See* Hydrogen sulfide  
**Sulfur mustard/lewisite** *See* Blister agent (HL, L)  
**Sulfurous anhydride** *See* Sulfur dioxide  
**Sulfurous oxide** *See* Sulfur dioxide  
**TCE** *See* Trichloroethylene  
**TDI** *See* Toluene diisocyanate  
**Tabun** *See* Nerve agent (GA, GB, GD, VX)  
**Termicide C-100** *See* Chlordane  
**Tetrachloroethylene**  
**Thiophos** *See* Parathion  
**Toluene**  
**Toluene diisocyanate**  
**Toluol** *See* Toluene  
**Tolylene diisocyanate** *See* Toluene diisocyanate  
**Topichlor** *See* Chlordane  
**Toxichlor** *See* Chlordane  
**Tri** *See* Trichloroethylene  
**1,1,1-Trichloroethane**  
**Trichloroethene** *See* Trichloroethylene  
**Trichloroethylene**  
**2,2',2''-Trichlorotriethylamine** *See* Blister agent (HN1, HN2, HN3)  
**Tris(2-chloroethyl)amine** *See* Blister agent (HN1, HN2, HN3)  
**VCN** *See* Actylonitrile  
**Velsicol 1068** *See* Chlordane  
**Vinyl ethylene** *See* 1,3-Butadiene  
**Vinyl chloride**  
**Vinyl cyanide** *See* Acrylonitrile  
**VX** *See* Nerve agent (GA, GB, GD, VX)  
**White arsenic** *See* Arsenic trioxide  
**Xylene**  
**Xylol** *See* Xylene  
**Yellow cross liquid** *See* Blister agent (H, HD, HT)  
**Yperite** *See* Blister agent (H, HD, HT)



**Absorption.** The incorporation of liquids or gases into the body. Absorption is also the process by which liquid hazardous materials are soaked up by sand, sawdust, or other material to limit the spread of contamination.

**Acute effect.** A pathologic process caused by a single substantial exposure.

**Acute exposure.** A single encounter to toxic concentrations of a hazardous material or multiple encounters over a short period of time (usually 24 hours).

**Adaptation.** The tendency of certain receptors to become less responsive or cease to respond to repeated or continued stimuli.

**Adsorption.** The property of a substance to attract and hold to its surface a gas, liquid, or other substance.

**Air purification devices.** Respirators or filtration devices that remove particulate matter, gases, or vapors from the atmosphere. These devices range from full-facepiece, dual-cartridge respirators with eye protection to half-mask, facepiece-mounted cartridges with no eye protection.

**Air-supplied respirators.** A device that provides the user with compressed air for breathing.

**Airways.** Any parts of the respiratory tract through which air passes during breathing.

**Albuminuria.** The presence of protein (primarily albumin) in the urine; usually indicative of transient dysfunction or disease.

**Alkali.** A basic substance (pH greater than 7) that has the capacity to neutralize an acid and form a salt.

**Alveolar ducts.** The smallest of the lungs' airways that connect terminal bronchioles and alveolar sacs. Sometimes called bronchioles.

**Alveoli** (singular alveolus). Microscopic air sacs in which gas exchange between the blood and the lungs occurs.

**Anemia.** Any condition in which the number of red blood cells, the amount of hemoglobin, and the volume of packed red blood cells per 100 milliliters of blood are less than normal.

**Anhydrous.** Containing no water.

**Anisocytosis.** Considerable variation in the size of blood cells.

**Anorexia.** Lack of appetite; aversion to food.

**Anoxia.** Lack of oxygen in inspired air, blood, or tissues.

**Anterior chamber of the eye.** The fluid-filled front portion of the eye between the cornea and the lens.

**Antidote.** An agent that neutralizes a poison or counteracts its effects.

**Anuria.** Absence of urine production.

**Aplastic anemia.** A condition characterized by a decrease in the amount of hemoglobin in the blood due to incomplete or defective development of red blood cells; usually accompanied by defective regeneration of white blood cells and platelets.

**Apnea.** Cessation of breathing.

**Asphyxia.** A condition in which the exchange of oxygen and carbon dioxide in the lungs is absent or impaired.

**Aspiration pneumonia.** Inflammation of the lungs due to inhalation of foreign material, usually food or vomitus, into the bronchi.

**Asthma.** A chronic condition in which constriction (spasm) of the bronchial tubes occurs in response to irritation, allergy, or other stimuli.

**Ataxia.** Incoordination of voluntary movement, especially affecting gait and speech.

**Atelectasis.** Lung collapse.

**Atomic weight.** The average weight (or mass) of all the isotopes of an element, as determined from the proportions in which they are present in a given element, compared with the mass of the 12 isotope of carbon (taken as precisely 12.000), which is the official international standard; measured in daltons.

**Atopy.** A tendency or predisposition to allergic reactions.

**Autoignition temperature.** The lowest temperature at which a gas or vapor-air mixture will ignite from its own heat source or a contacted heated surface without a spark or flame.

**Axon.** The part of a nerve cell that conducts nervous impulses away from the nerve cell body to the remainder of the cell (i.e., dendrites); large number of fibrils enveloped by a segmented myelin sheath.

**Axonal.** Pertaining to an axon.

**Bilirubin.** A red pigment that results from normal and abnormal destruction of red blood cells.

**Blepharospasm.** Involuntary spasmodic blinking or closing of the eyelids due to severe irritation.

**Boiling point.** The temperature at which the vapor pressure of a liquid equals the atmospheric pressure and the liquid becomes vapor.

**Bradycardia.** Slow heart rate, usually under 60 beats per minute.

**Bronchi** (singular **bronchus**). Large divisions of the trachea that convey air to and from the lungs.

**Bronchiole.** A small-diameter airway branching from a bronchus.

**Bronchitis.** Inflammation of the mucous membrane of the bronchial tubes, usually associated with a persistent cough and sputum production.

**Bronchorrhea.** Increased bronchial secretions.



**Bronchospasm.** Contraction of the smooth muscle of the bronchi, causing narrowing of the bronchi. This narrowing increases the resistance of air flow into the lungs and may cause a shortness of breath, typically associated with wheezing.

**Bullae.** Large fluid-filled blisters.

**Carcinogenic.** Causing cancer.

**Cardiac dysrhythmia.** Abnormality in the rate, regularity, or sequence of the heart beat. Formerly referred to as cardiac arrhythmia.

**Cataract.** Loss of transparency (clouding) of the lens of the eye.

**Catecholamines.** Substances of a specific chemical nature (pyrocatechols with an alkylamine side chain). Catecholamines of biochemical interest are those produced by the nervous system (e.g., epinephrine [adrenaline] or dopamine) to increase heart rate and blood pressure, or medicines with the same general chemical structure and effect.

**Caustic.** Substance that strongly irritates, burns, corrodes, or destroys living tissue.

**Cerebellar abnormalities.** Any irregularity in the cerebellum of the brain.

**Cerebellum.** The large brain mass located at the posterior base of the brain, responsible for balance and coordination of movement.

**Cerebral infarctions.** Death of tissue in the cerebrum due to lack of blood flow to the area.

**Cerebrum.** The largest portion of the brain; includes the cerebral hemispheres (cerebral cortex and basal ganglia).

**Chemexfoliation.** Chemical skin peeling; use of chemicals to remove scars or pigmentation defects.

**Chemical formula.** The collection of atomic symbols and numbers that indicates the chemical composition of a pure substance.

**Chemical-protective clothing.** Clothing specifically designed to protect the skin and eyes from direct chemical contact. Descriptions of chemical-protective apparel include nonencapsulating and encapsulating (referred to as liquid-splash protective clothing and vapor-protective clothing, respectively).

**Chronic effect.** A pathologic process caused by repeated exposures over a period of long duration.

**Chronic exposure.** Repeated encounters with a hazardous substance over a period of long duration.

**Cognitive function.** The ability to think.

**Coma.** State of profound unconsciousness from which the patient cannot be aroused.

**Combustible liquid.** Any liquid that has a flash point at or above 100 °F (37.7 °C) and below 200 °F (93.3 °C).

**Compressed gas.** Gas whose volume has been reduced by pressure.

**Congenital anomalies.** Birth defects.

**Conjunctiva** (*plural conjunctivae*). The delicate mucous membrane that covers the exposed surface of the eyeball and lines the eyelids.

**Conjunctivitis**. Inflammation of the conjunctiva; can result in redness, irritation, and tearing of the eye.

**Contact dermatitis (allergic)**. A delayed-onset skin reaction caused by skin contact with a chemical to which the individual has been previously sensitized.

**Contact dermatitis (irritant)**. Inflammatory skin reaction caused by a skin irritant.

**Control zones**. Areas at a hazardous materials incident whose boundaries are based on safety and the degree of hazard; generally includes the Hot Zone, Decontamination Zone, and Support Zone.

**Cornea**. Transparent membrane that covers the colored part of the eye.

**Cornea1 opacification**. Clouding of the cornea.

**Corrosive**. Ability to destroy the texture or substance of a tissue.

**Critical Care Area**. That area in a hospital designated for the treatment of severely ill patients.

**Cyanosis**. Bluish discoloration of the skin and mucous membranes due to deficient oxygenation of the blood; usually evident when reduced hemoglobin (i.e., hemoglobin unable to carry oxygen) exceeds 5%.

**Decontamination**. The process of removing hazardous materials from exposed persons and equipment at a hazardous materials incident.

**Decontamination Zone**. The area surrounding a chemical hazard incident (between the Hot Zone and the Support Zone) in which contaminants are removed from exposed victims.

**Defat**. To remove natural oils from the skin.

**Degradation**. The process of decomposition. When applied to protective clothing, a molecular breakdown of material because of chemical contact; degradation is evidenced by visible signs such as charring, shrinking, or dissolving. Testing clothing material for weight changes, thickness changes, and loss of tensile strength will also reveal degradation.

**Delirium**. A condition of extreme mental (and sometimes motor) excitement marked by defective perception, impaired memory, and a rapid succession of confused and unconnected ideas, often with illusions and hallucinations.

**Dementia**. A general deterioration of mental abilities.

**Demyelination**. Removal (destruction) of the myelin sheath that surrounds and protects nerves.

**Denervation atrophy**. Shrinkage or wasting of muscles due to loss of nerve supply.

**Dermal**. Relating to the skin.

**Dermatitis**. Skin inflammation.

**Dermis.** The layer of the skin just below the epidermis or outer layer. The dermis has a rich supply of blood vessels, nerves, and skin structures.

**Desiccation.** Removal of moisture; drying.

**Desiccant effect.** Drying of the skin caused by removal of soluble oils.

**Dilution.** The use of water to lower the concentration or amount of a contaminant.

**Diaphoresis.** Excessive perspiration.

**Diplopia.** Double vision.

**Dyscrasia.** Blood disorder.

**Dysphagia.** Difficulty in swallowing.

**Dyspnea.** Shortness of breath; difficult or labored breathing.

**Dysuria.** Painful or difficult urination.

**Edema.** Accumulation of fluid in body cells or tissues; usually identified as swelling.

**Embolization.** Obstruction of a blood vessel by a transported clot or other mass.

**Embryo.** In humans, the developing conceptus up to 8 weeks after fertilization of the egg. See also fetus.

**Embryotoxicity.** Ability to harm the embryo.

**Emergency.** A sudden and unexpected event requiring immediate remedial action.

**Emesis.** Vomiting.

**Encephalopathy.** Any disease of the brain.

**Environmental hazard.** A condition capable of posing an unreasonable risk to air, water, or soil quality, or plant or animal life.

**Epidermis.** The outermost layer of the skin.

**Erythroderma.** Intense, widespread reddening of the skin.

**Erythema.** Redness of the skin.

**Esophageal strictures.** Narrowing of the esophagus that causes difficulty in swallowing; often due to scar formation following extensive burns.

**Esophagus.** The portion of the digestive canal extending from the throat to the stomach. Also referred to as the gullet.

**Euphoria.** An intense and exaggerated feeling of well-being.

**Exfoliative dermatitis.** A skin condition that involves scaling or shedding of the superficial cells of the epidermis.

**Exothermic reaction.** Chemical reactions that produce heat.

**Explosives.** Compounds that are unstable and break down with the sudden release of large amounts of energy.

**Explosivity.** The characteristic of undergoing very rapid decomposition (or combustion) to release large amounts of energy,

**Fasciculation.** Muscle twitching.

**Fetotoxic.** Having the ability to harm the fetus.

**Fetus.** In humans, the conceptus from 8 weeks after fertilization until birth. See also embryo.

**Flame-resistant.** Slow or unable to burn.

**Flammable.** The ability of a substance to ignite and burn.

**Flammable (explosive) range.** The range of gas or vapor concentration (percentage by volume in air) that will burn or explode if an ignition source is present. Limiting concentrations are commonly called the lower explosive limit and upper explosive limit. Below the lower explosive limit, the mixture is too lean to burn; above the upper explosive limit, the mixture is too rich to burn.

**Flash point.** The minimum temperature at which a liquid produces enough vapor to ignite.

**Flashback.** The movement of a flame to a fuel source; typically occurs via the vapor of a highly volatile liquid or by a flammable gas escaping from a cylinder.

**Fluorosis.** Accumulation of excessive fluoride in the body; characterized by increased bone density and mineral deposits in tendons, ligaments, and muscles.

**Followup.** Constant or intermittent contact with a patient after diagnosis or therapy.

**Freezing point.** Temperature at which crystals start to form as a liquid is slowly cooled; alternatively, the temperature at which a solid substance begins to melt as it is slowly heated.

**Fume.** Fine particles (typically of a metal oxide) dispersed in air that may be formed in various ways (e.g., condensation of vapors, chemical reaction).

**Gangrene.** Death of tissue due to lack of blood supply.

**Gas.** A physical state of matter that has low density and viscosity, can expand and contract greatly in response to changes in temperature and pressure, readily and uniformly distributes itself throughout any container.

**Glaucoma.** A disease of the eye characterized by abnormal and damaging high pressure inside the eye; usually due to a blockage of the channel that normally allows the outflow of fluid from the eye.

**Glomerulus** (plural glomeruli). A tuft formed of capillary loops that filter blood in the kidney.

**Hazard.** A circumstance or condition that can cause harm.

**Hazardous materials.** Substances that, if not properly controlled, pose a risk to people, property, or the environment.

**Hazardous materials incident.** The uncontrolled release or potential release of a hazardous material from its container into the environment.

**Hematuria.** Condition in which the urine contains an abnormal amount of blood or red blood cells.

**Hemodialysis.** Removal of soluble substances from the blood by their diffusion through a semipermeable membrane.

**Hemoglobinuria.** Condition in which the urine contains an abnormal amount of hemoglobin.

**Hemolysis.** Destruction or dissolution of red blood cells in such a manner that hemoglobin is liberated into the medium in which the cells are suspended.

**Hemolytic anemia.** Any anemia resulting from destruction of red blood cells.

**Hemoptysis.** The spitting of blood derived from hemorrhage in the lungs or bronchial tubes.

**Hepatic.** Pertaining to the liver.

**Hepatomegaly.** Enlargement of the liver.

**Hot Zone.** The area immediately surrounding a chemical hazard incident, such as a spill, in which contamination or other danger exists.

**Hyperbilirubinemia.** A condition in which an abnormally large amount of bilirubin is found in the blood. Jaundice becomes apparent when the level of bilirubin is double the normal level.

**Hyperesthesia.** Increased sensitivity to touch, pain, or other sensory stimuli.

**Hyperpigmentation.** An excess of pigment in a tissue or part of the body.

**Hyperreflexia.** A condition in which the deep tendon reflexes are exaggerated.

**Hypersensitization.** Increased sensitivity of the immune system; induced by initial exposure with subsequent exposures eliciting a greater than expected immunologic response.

**Hypertension.** High blood pressure.

**Hypocalcemia.** A condition in which an abnormally low concentration of calcium ions is present in the blood.

**Hypokalemia.** A condition in which an abnormally low concentration of potassium ions is present in the blood.

**Hypomagnesemia.** A condition in which the plasma concentration of magnesium ions is abnormally low; may cause convulsions and concurrent hypocalcemia.

**Hypophosphatemia.** Condition in which an abnormally low concentration of phosphate is found in the blood.

**Hypotension.** Low arterial blood pressure.

**Hypotonia.** A condition in which there is a loss of muscle tone.

**Hypoxemia.** A condition in which inadequate oxygen is present in arterial blood, short of anoxia.

**Hypoxia.** Condition in which below-normal levels of oxygen are present in the air, blood, or body tissues, short of anoxia.

**Ignition (autoignition) temperature.** The minimum temperature required to ignite gas or vapor without a spark or flame being present.

**Immediately dangerous to life and health (IDLH).** That atmospheric concentration of a chemical that poses an immediate danger to the life or health of a person who is exposed but from which that person could escape without any escape-impairing symptoms or irreversible health effects. A companion measurement to the permissible exposure limit (PEL), IDLH concentrations represent levels at which respiratory protection is required. IDLH is expressed in parts per million (ppm) or mg/m<sup>3</sup>.

**Inadequate warning property.** Characteristic (e.g., odor, irritation) of a substance that is not sufficient to cause a person to notice exposure.

**Incident commander.** The person responsible for establishing and managing the overall operational plan at a hazardous material incident. The incident commander is responsible for developing an effective organizational structure, allocating resources, making appropriate assignments, managing information, and continually attempting to mitigate the incident.

**Insecticide.** An agent that has the ability to kill insects.

**Intention tremor.** Trembling of the extremities during movement.

**Interstitial pneumonitis.** Inflammation of the alveolar walls and the spaces between them.

**Iritis.** Inflammation of the colored part of the eye (iris).

**Ischemia.** Obstruction of blood flow (usually by arterial narrowing) that causes lack of oxygen and other bloodborne nutrients.

**Ischemic necrosis.** Death of cells as a result of decreased blood flow to affected tissues.

**Jaundice.** Yellowing of the skin and whites of the eyes due to an accumulation of bile pigments (e.g., bilirubin) in the circulating blood.

**Keratitis.** Inflammation of the cornea.

**Lacrimation.** Secretion of tears, especially in excess.

**Laryngeal edema.** Swelling of the voice box due to fluid accumulation.

**Laryngitis.** Inflammation of the mucous membrane of the larynx.

**Laryngospasm.** Spasmodic closure of the vocal apparatus.

**Lethargy.** A state of extreme tiredness or fatigue.

**Leukemia.** Progressive proliferation of abnormal leukocytes found in blood and blood-forming tissues and organs; due to cancer of the bone marrow cells that form leukocytes.

**Leukocyte.** White cell normally present in circulating blood.

**Material safety data sheet (MSDS).** Documents prepared by the chemical industry to transmit information about the physical properties and health effects of chemicals, and about emergency response plans.

**Methemoglobin.** A transformation product of hemoglobin in which normal  $\text{Fe}^{+2}$  is oxidized to  $\text{Fe}^{+3}$ .

**Methemoglobin** contains oxygen that is firmly bound to the  $\text{Fe}^{+3}$  ion, which prevents the release of oxygen to the tissues.

**Methemoglobinemia.** Condition in which methemoglobin is present in the circulating blood.

**Methemoglobinuria.** Condition in which methemoglobin is present in the urine.

**Miosis.** Contraction of the pupil to a pinpoint.

**Miscible.** Able to mix (but not chemically combine) in any ratio without separating into two phases (e.g., water and alcohol).

**Mist.** Liquid droplets dispersed in air.

**Mitigation.** Actions taken to prevent or reduce the severity of harm.

**Monocytic leukemia.** A form of bone marrow cancer characterized by an increase in the number of large, mononuclear white blood cells in tissues, organs, and the circulating blood.

**Molecular weight.** The sum of the atomic weights (q.v.) of the atoms in a molecule; measured in daltons.

**Myalgia.** Severe muscle pain.

**Mydriasis.** Dilation of the pupil.

**Myelocytic leukemia.** A form of bone marrow cancer characterized by the presence of large numbers of granular white blood cells in tissues, organs, and the circulating blood.

**Myocardial ischemia.** Insufficient oxygen supply to meet the metabolic demands of heart muscles.

**Myocarditis.** Inflammation of the muscles of the heart.

**Myoclonus.** Involuntary spasm or twitching of a muscle or group of muscles.

**Myoglobin.** The oxygen-transporting, pigmented protein of muscle; resembles blood hemoglobin in function.

**Myoglobinuria.** Presence of myoglobin in urine.

**Nasopharynx.** Relating to the nasal cavity and that part of the throat that lies above the level of the soft palate.

**Necrosis.** Death of one or more cells or a portion of a tissue or organ.

**Nephrotoxic.** Capable of damaging the kidney.

**Neuropathy.** A disorder of the nervous system; in contemporary usage, a disease involving the cranial or spinal nerves.

**Noncardiogenic pulmonary edema.** An accumulation of an excessive amount of fluid in the lungs as a result of leakage from pulmonary capillaries; not due to heart failure.

**Nystagmus.** Involuntary rapid movements of the eyeballs, either rhythmical or jerky.

**Ocular.** Pertaining to the eye.

**Odor threshold.** The lowest concentration of a vapor or gas that can be detected by smell.

**Off-gassing.** Giving off a vapor or gas.

**Olfactory fatigue.** Temporary loss of the sense of smell due to repeated or continued stimulation.

**Oliguria.** Condition in which abnormally small amounts of urine are produced.

**Opisthotonos.** Tetanic spasm in which the spine and extremities are bent up and forward so that a reclining body rests on the head and the heels.

**Optic atrophy.** Shrinkage or wasting of the optic nerve that may lead to partial vision loss or blindness.

**Optic neuritis.** Inflammation of the optic nerve.

**Osteosclerosis.** Abnormal hardening or increase in density of the bone.

**Paresthesias.** An abnormal sensation such as burning, prickling, or tingling.

**Percutaneous absorption.** Passage of a substance through unbroken skin.

**Peripheral neuropathy.** A disorder of the peripheral nerves.

**Permeation.** The passage of chemicals, on a molecular level, through intact material such as protective



---

clothing.

**Permissible exposure limit (PEL).** The maximum time-weighted average concentration mandated by the Occupational Safety and Health Administration (OSHA) to which workers may be repeatedly exposed for 8 hours per day, 40 hours per week without adverse health effects.

**Photophobia.** Abnormal sensitiveness to light, especially of the eyes.

**Physical state.** The state (solid, liquid, or gas) of a chemical under specific conditions of temperature and pressure.

**Pneumonitis.** Inflammation of the lungs.

**Poikilocytosis.** The presence of irregularly shaped red blood cells in the peripheral blood.

**Posthypoxic encephalopathy.** Condition in which the brain has been damaged as a result of insufficient oxygen.

**Proteinuria.** A condition in which an abnormal amount of protein is present in the urine. See also albuminuria.

**Pruritic.** Pertaining to itching.

**Psychosis.** A mental disorder characterized by derangement of personality and loss of touch with reality.

**Pulmonary edema.** Accumulation of extravascular fluid in the lungs that impairs gas exchange; usually due to either increased intravascular pressure or increased permeability of the pulmonary capillaries.

**Pupil.** The circular opening in the center of the iris through which light rays enter the eye.

**Reactivity.** The ability of a substance to chemically interact with other substances.

**Rescuer protection equipment.** Gear necessary to prevent injury to workers responding to chemical incidents.

**Respiratory depression.** Slowing or cessation of breathing due to suppression of the function of the respiratory center in the brain.

**Response organization.** An organization prepared to provide assistance in an emergency (e.g., fire department).

**Response personnel.** Staff attached to a response organization (e.g., HAZMAT team).

**Retrobulbar neuritis.** Inflammation of the portion of the optic nerve behind the eyeball.

**Rhinitis.** Inflammation of the mucous membranes of the nasal passages.

**Rhinorrhea.** A discharge from the nasal mucous membrane.

**Routes of exposure.** The manner in which a chemical contaminant enters the body (e.g., inhalation, ingestion).

**Sclera.** The tough, white supporting tunic of the eyeball.

**Secondary contamination.** Transfer of a harmful substance from one body (primary body) to another (secondary body), thus potentially permitting adverse effects to the secondary body.

**Self-contained breathing apparatus (SCBA).** Protective equipment consisting of an enclosed facepiece and an independent, individual supply (tank) of air; used for breathing in atmospheres containing toxic substances or underwater.

**Sensory neuropathy.** Damage to the nerves that carry information about sensation (e.g., touch, pain, temperature) to the brain.

**Sequela (plural sequelae).** A condition that follows as a consequence of injury or disease.

**Sloughing.** The process by which necrotic cells separate from the tissues to which they have been attached.

**Solubility.** The ability of one material to dissolve in or blend uniformly with another.

**Soluble.** Capable of being dissolved.

**Solution.** A homogeneous mixture of two or more substances, usually liquid.

**Solvent.** A substance that dissolves another substance.

**Specific gravity.** The ratio of the mass of a unit volume of a substance to the mass of the same volume of a standard substance (usually water) at a standard temperature.

**Status epilepticus.** Severe seizures in which recovery does not occur between major episodes.

**Stridor.** A harsh, high-pitched respiratory sound often heard in acute respiratory obstruction.

**Support Zone.** That area beyond the Decontamination Zone that surrounds a chemical hazard incident in which medical care can be freely administered to stabilize a victim.

**Surfactant.** An agent that reduces surface tension (e.g., wetting agents, detergents, dispersing agents).

**Tachycardia.** Rapid heartbeat (typically greater than 100 beats per minute).

**Tachypnea.** Rapid breathing.

**Teratogenic.** Having the ability to cause congenital anomalies.

**Tetany.** A condition marked by involuntary muscle contractions or spasms.

**Thrombocytopenia.** A condition in which there is an abnormally small number of platelets in the blood.

**Thrombosis.** Blood vessel clotting.

**Time-weighted average (TWA) air concentration.** That concentration of a substance in air that is measured by collecting it on a substrate at a known rate for a given period of time.

**Tinnitus.** Ringing in the ears.

**Toxic potential.** The inherent ability of a substance to cause harm.

**Toxic.** Having the ability to harm the body, especially by chemical means.

**Tracheitis.** Inflammation of the membrane lining the trachea.

**Trismus.** Lockjaw.

**Tubular necrosis.** Death of the cells lining the kidney tubules.

**Uremia.** Condition in which an abnormally high level of urea or other nitrogenous waste is found in the blood; due to kidney dysfunction.

**Urticaria.** Hives.

**Vapor density.** The weight of a given volume of vapor or gas compared to the weight of an equal volume of dry air, both measured at the same temperature and pressure.

**Vapor pressure.** A measure of the tendency of a liquid to become a gas at a given temperature.

**Vapor.** The gaseous form of a substance that is normally a solid or liquid at room temperature and pressure.

**Vascular.** Pertaining to blood vessels.

**Vasodilation.** Increased diameter of the blood vessels.

**Ventricular fibrillation.** Rapid, tremulous movement of the ventricle that replaces normal contractions of the heart muscle; results in little or no blood being pumped from the heart

**Vertigo.** Sensation of spinning or revolving.

**Vesicant.** An agent that produces blisters.

**Vesiculation.** The presence or formation of blisters.

**Water-reactive material.** A substance that readily reacts with water or decomposes in the presence of water, typically with substantial energy release.

**Wheezing.** Breathing noisily and with difficulty; usually a sign of spasm or narrowing of the airways.



