GLOSSARY OF CLEANING TERMS

Abrasion- The wearing away or cleaning by friction. Abrasion can also relate to the wearing away of a floor finish film by friction.

Abrasive- A product that works by abrasion. Products such as cleaners, polishes and pads may contain an abrasive.

Acid- A compound that ionizes in water to produce hydrogen ions. It readily donates protons to other substances and, when dissolved in water, creates solutions that conduct electricity, taste sour and turns litmus paper red. Inorganic acids (sometimes called mineral acids) include sulfuric, nitric, hydrochloric and phosphoric. Organic acids include acetic, oxalic, hydroxyacetic and citric. Acids are used in toilet bowl cleaners, rust removers and hard water stain removers.

Active Ingredients- The ingredients in a product that are specifically designed to achieve the product performance objectives.

Adhesion- One characteristic of soils or films which causes soils and oils to stick or bond to surfaces making them difficult to remove.

Alcohols- Organic compounds that contain one or more hydroxyl groups (-OH functional groups) in each molecule. Alcohols used in cleaners include ethyl, methyl, propyl and butyl.

Aliphatic Solvents- These are sometimes referred to as paraffins. They are also referred to as straight chain or open chain solvents. Kerosene, Odorless Mineral Spirits and Mineral Seal Oil are examples of aliphatic solvents.

Alkali or Base- Describes a solution formed when a base dissolves in water to form a solution which contains more hydroxide ions than hydrogen ions. Alkaline solutions have a pH of more than 7, turn red litmus paper blue, and feel soapy because they react with the skin. Alkalinity is exhibited in solution by alkalies such as sodium or potassium hydroxide or alkaline salts such as sodium carbonate. A substance used in some wax strippers, degreasers and cleaners to assist in soil and finish removal.

Ammonia- An alkaline gas composed of nitrogen and hydrogen. Aqueous solutions of with 5-10% ammonia are sold as household ammonia.

Amphoteric Surfactant- A surfactant that, in water solution, may be either anionic or cationic, depending upon the pH.

Anhydrous- A product that has had all of the water removed.

Anion- An ion with a negative charge, formed when an atom gains electrons in a reaction. The atom now has more electrons than protons.

Anionic Surfactant- Negatively charged part of a molecule. Anionic surfactants are widely used in high-sudsing detergents.

Antiredeposition Agent- An ingredient used in detergents to help prevent soil from redepositing on surfaces or fabrics. Sodium carboxymethylcellulose (CMC) is the most widely used.

Aromatic Solvents- Solvents made of compounds that contain an unsaturated ring of carbon atoms, typified by benzene structures. Xylene and toluene are aromatic solvents sometimes referred to as Ring Hydrocarbons.

Atom- The smallest particle of an element that retains the chemical properties of that element. The atoms of many elements are bonded together in groups to form particles called molecules. Atoms consist of three main types of smaller particles. These include the electrons, protons and neutrons.

Biodegradable- The ability of a substance to be broken down into simpler, smaller parts by a biological process. Many plastics are not biodegradable.

Bleach- A product that cleans, whitens, removes stains and brightens fabrics.

Boiling Point- The temperature at which a liquid changes to a vapor state at a given pressure.

Buffer- In chemistry, any substance in a fluid which tends to resist a sudden change in pH when acid or alkali is added. Buffering is provided by complex phosphate builders, sodium carbonate, sodium silicate and sodium citrate. Usually a solution of a weak acid and its conjugate base or a weak base and its conjugate acid.

Builder- A material that upgrades or protects the cleaning efficiency of a surfactant. Builders inactivate water hardness, supply alkalinity to assist cleaning, provide buffering to maintain alkalinity, prevents redeposition of soil and emulsification of oily and greasy soils.

Build-up- A heavy deposit of floor finish, wax, dirt and grime. It is caused by adding layer after layer of floor finish over dirt without deep scrubbing the old layers away first. These build-ups are frequently found along baseboards and corners.

Calcium Carbonate- An inorganic compound that occurs naturally as chalk and limestone. Its very slight solubility in water is a chief cause of "hardness" in water.

Catalyst- An element or compound that accelerates the rate of a chemical reaction but is neither changed nor consumed by it.

Cation- An ion with a positive charge, formed when an atom loses electrons in a reaction. The atom now has more protons than electrons.

Cationic Surfactant- A surfactant with a positively charged ionic group. The most common cationic surfactants are known as quaternary ammonium compounds such as alkyl dimethyl benzyl ammonium chloride. These are widely used as disinfectants and sanitizers.

Caustic- Strong alkaline substance which irritates the skin.

Ceramic Tile- Clay tile with an impervious, usually glossy, layer on the surface.

Chelating Agent- An organic sequestering agent used to inactivate hard water and other metallic ions in water. Additives in detergents for inactivating the minerals in water that interfere with cleaning. Ingredients include ethylene diamine tetraacetic acid (EDTA), NTA and sodium citrate.

Chemical Reaction- Any change which alters the chemical properties of a substance or which forms a new substance. During a chemical reaction, products are formed from reactants.

Chemical Symbol- A shorthand way of representing an element in formula and equations. Sodium Chloride is represented in chemical symbols by NaCl (Na is Sodium and Cl is Chlorine).

Chemistry- The study of substances. What they are made of and how they work. It is divided into three main branches -- physical chemistry, inorganic chemistry and organic chemistry.

Chlorinated Solvents- An organic solvent that contains chlorine atoms as part of the molecular structure. Examples include methylene chloride and trichloroethylene.

Chlorine Bleach- A group of strong oxidizing agents commonly sold in an approximately 5% solution of sodium hypochlorite. Care should be taken to never mix chlorine bleach with ammonia or hydrochloric acid.

Cleaning- Cleaning is locating, identifying, containing, removing and disposing of unwanted substances (pollutants) from the environment. It is our most powerful means of managing our immediate surrounding and protecting our health.

Cleanser- A powdered or liquid cleaning product containing abrasives, surfactants and frequently a bleach.

Cloud Point- The temperature at which a surfactant becomes insoluble in water. This becomes important when designing detergents for use in hot water.

Coagulation- An irreversible process in which a number of emulsion droplets coalesce, leading to complete separation of the emulsion.

Colloid- A type of solution in which the particles are not dissolved but are dispersed throughout the solvent or medium and held in suspension.

Compatibility- The ability of two or more substances to mix without objectionable changes in their physical or chemical properties.

Compound- A combination of two or more elements, bonded together in some way. It has different physical and chemical properties from the elements it is made of. Compounds are often difficult to split into their elements and can only be separated by chemical reactions.

Concrete- A mixture of sand, gravel, Portland cement and water that forms a very hard surface when dry. It is one of the most common floor types found in buildings. Other types of floors like vinyl and vinyl composition tile are often laid over the top of concrete.

Corrosion Inhibitor- A material that protects against the wearing away of surfaces. Sodium silicate is a corrosion inhibitor commonly used in detergents.

Critical Micelle Concentration- The concentration of a surfactant in solution at which the molecules begin to form aggregates called micelles while the concentration of surfactant in solution remains constant.

Defoamers- Substance used to reduce or eliminate foam.

Degreaser- A specialty product that removes grease and greasy/oily soils from hard surfaces. Basic ingredients include surfactants that penetrate and emulsify along with alcohol or glycol derivatives to boost cleaning.

Deionized Water- Water from which charged or ionizable organic or inorganic salts are removed.

Deliquescent- Describes a substance which absorbs water vapor from the air and dissolves in it, forming a concentrated solution. Calcium chloride is an example.

Density- Equal to its mass divided by its volume.

Detergent- A washing and cleaning agent with a composition other than soap. Detergents unlike soaps are less sensitive to minerals in water.

Diffusion- The spontaneous and even mixing of gases or liquids.

Dispersing Agent- A material that reduces the cohesive attraction between like particles.

Dispersion- A colloidal system characterized by a continuous (external phase) and a discontinuous (internal phase). Uniformity of dispersions can be improved by the use of dispersing agents.

Distilled Water- Water which has had salts removed by distillation. It is very pure, but does contain some dissolved gases.

Dwell or Contact Time- Describes the time

Efflorescent- Describes a crystal which loses part of its water of crystallization to the air. A powdery coating is left on its surface. The forming of a white powdery substance on the surface of concrete or brick is an example.

Electrolytes- Substances capable of conducting an electric current, either in their pure liquid state or when in solution. Acids, bases and salts are all electrolytes.

Electrostatic Attraction- Attractive force between two oppositely charged ions.

Elements- A pure substance that cannot be broken down into smaller substances. Elements are considered the building blocks of all matter. There are just over 100 known elements classified in the periodic table.

Elements, Compounds and Mixtures- These are the three main types of chemical substances. All substances are made of elements, and most are a combination of two or more elements.

Emulsification- The action of breaking up fats, oils and other soils into small particles which are then suspended in a solution.

Emulsion- A two-phase liquid system in which small droplets of one liquid are uniformly dispersed throughout the second. An oil in water (O/W) emulsion, is one in which the continuous phase is aqueous, while a water in oil (W/O) +-emulsion is one in which the continuous phase is oil.

Enzyme- Protein molecules produced within an organism that are used as catalysts for biochemical reactions.

Etch- A chemically caused change on the outside of a smooth floor surface which causes the floor to be pitted or rough.

Eutrophication- An overgrowth of aquatic plants caused by an excess of nitrates, nitrites and phosphates. It results in a shortage of oxygen in the water, causing the death of aquatic life.

Evaporation- A change of state from liquid to gaseous (vapor), due to the escape of molecules from the surface. A liquid which evaporates readily is described as volatile.

Evaporation Speed- Expressed in relation to the evaporation rate of n-Butyl Acetate which is standardized at 1.0. All products with evaporation rates greater than 1.0 are faster evaporating than n-Butyl Acetate and conversely numbers lower than 1.0 indicate a slower rate.

Exothermic Reaction- A reaction in which heat is given off to the surroundings as the products of the reaction are formed. The addition of high concentrations of sodium hydroxide to water produces an exothermic reaction.

Fatty Acid- An organic substance which reacts with a base to form a soap. Tallow and coconut oil are examples.

Flashpoint- The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested.

Flocculation- A reversible process in which a number of emulsion droplets stick together to form a cluster which can be broken up by mechanical action restoring the emulsion to its original form.

Foam- A mass of bubbles formed on liquids by agitation. Foam can be unstable, transient or stable depending upon the presence and nature of the components in the liquid.

Gas Form of Matter- A gas has no shape, diffuses readily, and assumes the full-volume shape of any closed container. Gas molecules are widely distributed and can move in any direction.

Grains Hardness- A measure of water hardness. The actual amount of dissolved calcium and magnesium salts measured in parts per million.

Hard Water- Water which contains calcium and magnesium salts that have dissolved from the rocks over which the water has flowed. Water that does not contain these salts is called soft water. There are two types of hardness -- temporary hardness, which can be removed relatively easy and permanent hardness, which is more difficult to remove.

Heterogeneous- Describes a substance which varies in its composition and properties from one part to another. Properties differ from place to place within the solution.

HLB (Hydrophile-Lipophile Balance)- A property of a surfactant which is represented by an arbitrary scale of 0-20 wherein the most hydrophilic materials have the highest numbers. The HLB of a nonionic surfactant is the approximate weight of ethylene oxide in the surfactant divided by 5.

Homogeneous- Describes a substance which is the same throughout in its properties and composition.

Humidity- A measure of moisture in the atmosphere. It depends on the temperature and is higher in warm air than cold air.

Hydrophilic- A descriptive term applied to the group or radical of a surfactant molecule that makes or tends to make it soluble in water. Associated with the hydrophilic portion of a surfactant molecule is the opposite hydrophobic (water-hating) portion.

Hydrotrope- A substance that increases the insolubility in water of another material, which is only partially soluble.

Hygroscopic- Describes a substance which can absorb up to 70% of its own mass of water vapor. Such a substance becomes damp, but does not dissolve.

Insolubility- The inability of one substance to dissolve in another.

Interfacial Tension- A measure of the molecular forces existing at the boundary between two phases. It is expressed in dynes/cm. Liquids with low interfacial tension are more easily emulsified.

Ions- An electrically charged particle, formed when an atom loses or gains one or more electrons to form a stable outer shell. All ions are either cations or anions.

Liquid Form of Matter- A liquid assumes the shape of its container. The molecules of a liquid are in constant motion and do not have the fixed arrangement found in solids.

Matter- Any substance that has mass (weight) and occupies space. It exists in any of three forms including a solid, liquid or gas.

Micelle- A spherical grouping of detergent molecules in water. Oils and greases dissolve in the hydrophobic center of the micelle.

Miscibility- A term often used interchangeably with solubility. It is the ability of a liquid or gas to dissolve uniformly in another liquid or gas.

Mixture- A blend of two or more elements and/or compounds which are not chemically combine. A mixture can usually be separated into its elements or compounds fairly easily by physical means.

Molecules- The smallest particle of an element or compound that normally exists on its own and still retains its properties. Molecules normally consist of two or more atoms bonded together. Some molecules have thousands of atoms. Ionic compounds consist of ions and do not have molecules.

Neutral- A chemical state that is neither acid nor alkali. A pH of 7 is considered neutral.

Neutral Cleaner- A floor cleaner that has a pH that is compatible with the finish to be cleaned. Generally this means a pH of between 7-9. Higher pH floor cleaners can attack the floor finish and dull it.

Nonionic Surfactant- A surface active agent that contains neither positively or negatively charged functional groups. These surfactants have been found to be especially effective in removing oily soil.

Oxidation- To combine with oxygen. Slow oxidation is typified by the rusting of a metal.

Oxidizing Agent- A substance that accepts electrons in an oxidation-reduction reaction. A substance that causes the oxidation of a reactant molecule.

pH- A measurement of the acidity or alkalinity of a substance. It is expressed in a number from 0-14. Zero being a powerful acid and 14 being a powerful alkali. Distilled water is a 7.

Phosphates- A substance that is added to a detergent to increase its water softening ability.

Physical Properties- Qualitative and Quantitative properties that describe a substance. They include smell, taste, color, melting point, density, hardness etc.

Pine Oil- An oil process from gum of pine trees.

Polar Solvent- Water is the most common polar solvent.

Porous- A surface that was many tiny openings. A porous surface will require more finish or sealer to fill and smooth out these openings.

Precipitate- Material settled out of solution.

Preservatives- Floor finishes are susceptible to bacterial contamination. This is why finishes contain small amounts of antimicrobial agents to prevent microbial deterioration. These preservatives protect the unopened container, but do not substantially protect finish after it has been used. This is why it is important to never pour used floor finish back into a container of unused finish.

Reagent- A substance used to start a chemical reaction. In the laboratory, hydrochloric acid, sulfuric acid and sodium hydroxide are reagents.

Salt- An ionic compound formed by the reaction between an acid and a base.

Saponification- The process of converting a fat into soap by treating it with an alkali. Also the process used by some to remove grease and oil.

Saturated- Describes a solution that will not dissolve any more solute at a given temperature. Any more solute will remain as crystals.

Scientific Method- A standardized way that scientists research and find answers to questions and

problems.

Sequestering Agents- Chemicals that tie up water hardness and prevent the precipitation of hard water salts. This action causes clarity in liquid soap.

Soils- Describes a wide group of substances that attach themselves to surfaces creating a pollutant. Soils loosely attach themselves to surfaces by surface tension, electrical attraction or chemical bonding.

Solid Form of Matter- A solid holds its shape and volume even when not in a container. The molecules of a solid are tightly compacted and move only slightly.

Solvents- A liquid which dissolves another substance. Water is the most common solvent.

Specific Gravity- The ratio of the weight of a given volume of a liquid to the weight of an equal volume of distilled water. Water at that temperature has a specific gravity of 1. If the specific gravity of the other substance is greater than 1 it floats in water; if less than 1 it sinks.

States of Matter- A substance can be solid, liquid or gaseous. Substances can change between states, normally when heated or cooled to increase or decrease the energy of the particles.

Surface Tension- The attractive forces which liquid molecules have for each other.

Surfactant- Substances which lower the surface tension of water. These surface-active agents modify the emulsifying, foaming, dispersing, spreading and wetting properties of a product.

Suspension- The process of a cleaning agent holding insoluble dirt particles in the cleaning solution and keeping them from redepositing on a clean floor.

Synergistic- Chemicals that when combined have a greater effect than the sum of the two independently.

Synthetic Detergents- These are sometimes called soapless detergents. They are typically made from by-products of refining crude oil. They do not form a scum in hard water and lather better than soaps.

Thinner - A liquid used to reduce the viscosity of a coating and that will evaporate before or during the cure of a film.

Titration- A procedure that uses a neutralization reaction to determine the normality (the number of equivalents per liter of solution) of an unknown acid or base solution.

Universal Solvent- Water is called the universal solvent because it dissolves both ionic compounds and

polar molecular compounds. Water usually cannot dissolve nonpolar molecules.

Use-Dilution- The final concentration at which a product is used.

Vapor Pressure- Describes a measure of a liquids tendency to evaporate. Every liquid has a characteristic vapor pressure that changes as the internal temperature of the liquid changes. Generally, as the temperature of a liquid increases, its vapor pressure also increases.

Viscosity- The thickness of a liquid which determines pourability. Water has a viscosity of 1 centipoise. The resistance to flow is measured in relationship to water in centipoise.

Volatile- The part of a product that evaporates during drying.

Water Hardness- A measure of the amount of metallic salts found in water. Hard water can inhibit the action of some surfactants and reduce the effectiveness of the cleaning process.

Weight per Gallon- The weight per gallon of any liquid is determined by multiplying the weight of a gallon of distilled water (8.33 lbs.) by the specific gravity of the liquid.

Wetting Agent- A chemical which reduces surface tension of water, allowing it to spread more freely.