GLOSSARY of Nail Terms

Many of us hear terms associated with nails and artificial nail enhancements that are either unclear in their definition, or they are confusing by their very nature. Many of these terms are chemically related, yet they can be simple terms to understand. This list contains terminology associated with natural and artificial nails, procedures, and a few product or additive definitions.

**Adhesive:** A chemical that causes two surfaces to stick together.

**Allergen:** A substance capable of producing an exaggerated or adverse reaction, such as sneezing, coughing, rash or irritation in sensitive individuals.

**Allergic Reaction:** Allergic reaction, or an allergy, is an adverse reaction to the body usually characterized by skin redness, itching, blisters and localized swelling.

**Acrylic:** A polymerized polymer coating. This coating is formed through the combination of an exact mix ratio of monomer to polymer. Today's acrylic monomers (liquid) are made with Ethyl Methacrylate (EMA) due to its inherent flexibility. Acrylic polymers (powder) contain approximately 70% EMA, and 30% MMA (Methyl Methacrylate). This combination of chemicals create an enhancement that is both flexible and strong and mimics the natural nails flexibility and strength.

**Bacteria:** A single cell organism. Some bacteria are capable of causing disease.

**Balance Point Positioning:** Stabilizing your working hand on your other hand for steady control.

**Benzoyl Peroxide:** A heat-sensitive initiator used in monomer and polymer systems.

**Breathing Zone:** The two foot sphere around each persons mouth, from which all your breathing air is drawn.

**Brittleness:** The properties that determine how likely something is to break under force.

**Chemical:** Everything you see and touch except for light and electricity.

**Contamination:** To make impure, infected, corrupt, etc., by contact with or addition of something.

**Co-polymer:** Polymers made of two or more different types of monomers.

**Cross-linked:** Polymers that create a chemical bond between two other polymer chains.

**Crystallization:** An undesirable, but preventable formation of tiny crystals in the uncured nail coating that usually results from unusually cold temperatures or drafts. Liquid will actually freeze and turn into a solid before it polymerizes with the powder (polymer).
**Cuticle:** True cuticle is the layer of translucent or colorless skin that is constantly being shed from the underside of the proximal nail fold.

**Dehydration:** To remove moisture from a surface, substance or object which will improve adhesion and help to prevent yeast, bacterial and fungal infections.

**De-lamination:** The peeling apart of two improperly adhered surfaces. Natural nails can de-laminate due to a lack of natural oil and moisture levels in the nail plate layers. Most often referred to as 'lifting'.

**Dermis:** The dermis is the bottom layer of skin. The surface of the dermis is grooved with many tiny channels, slits or tracks, upon which the nail moves as it grows.

**Disinfection:** A procedure used to control micro-organisms on non-living surfaces such as: instruments, implements or environmental surfaces.

**Distal Edge of Plate:** Distal means the farthest edge, or the free edge.

**Ethyl Methacrylate (EMA):** Ethyl Methacrylate is most widely used in monomer form as one part of the system used to create artificial nail enhancements. EMA can be safely soaked from the nail plate for complete removal. EMA is a 'flexible' monomer.

**Etch:** The process of rendering a design on a hard surface (such as glass) by corroding its surface with acid. This term is often used to describe the filing process used to remove the surface shine from natural nails in preparation for a nail enhancement service. 'Etching' is usually accomplished by using a heavy grit file to remove the surface shine, and to disrupt the nail plate layers. Today's products do not require the use of this damaging method to ensure adhesion.

**Epidermis:** The epidermis is the upper most layer of skin. It is attached to the bottom of the nail plate and is ridged with tiny 'rails' that run in the same direction as the dermis grooves. The effect is much like a train riding on its tracks as it moves forward.

**Eponychium:** The eponychium is the extension of the proximal nail fold at the base of the nail body which partly overlaps the lunula.

**Esters:** A small specific portion of a structure of a molecule. All nail coating polymers, except for polishes, contain esters.

**Flash Point:** The temperature at which a substance gives off a sufficient amount of vapours to form an ignitable mixture with air. Products with a low flash point (below 100° F) should not be used in the presence of (or near) fire, flame, sparks or high heat, i.e., a lit cigarette or automobile trunks. The flash point of a product can be found in the MSDS.

**Flexibility:** Determined by how much a substance will bend under force.

**Free Radicals:** Very excited molecules which cause many kinds of chemical reactions.
**Fumes:** Irritating smoke, vapour or gas.

**Fungi:** Fungi are microscopic plant organisms consisting of many cells, such as mold, mildews and yeast. Fungi are incapable of manufacturing their own food and behave as either parasites or saprophytes.

**Gel (Nails):** Gel is often referred to as *not* being acrylic, when in fact they are based on both the methacrylate and the acrylate family, and are indeed acrylic. Gels are made by pre-joining some of the monomers into short chains called oligomers. Oligomers are single chains that are several thousand monomers long. Gels create rigid surface coatings and are usually cured by exposure to ultra violet light.

**Hardness:** A measure of how easily a substance is scratched or dented.

**Hazardous Ingredient:** Any substance which may be capable to causing physical or health related injury to an exposed individual.

**Hydroxyl Ethyl Methacrylate (HEMA):** HEMA is a protein specific monomer that will seek out and firmly attach itself to the protein in the nail plate. HEMA is used as an additive to improve adhesion.

**Hyponychium:** The hyponychium is that portion of the epidermis under the free edge of the nail.

**Interpenetrating Polymer Networks (IPN's):** A polymer that weaves through other polymers and increases cross-linking.

**Lateral Nail Fold:** The lateral nail fold is the surrounding soft tissue around the sides of the natural nail.

**Lunula:** The lunula, or half moon, is located at the base of the nail. The area under the lunula is the front of the matrix. The light color of the lunula may be due to the reflection of light where the matrix and the connective tissue of the nail be join.

**Material Safety Data Sheet (MSDS):** Chemical information sheets also containing safety precautions on each potentially hazardous product one uses. It is an OSHA regulation for all salons to have MSDS on premises for all products containing potentially hazardous chemicals.

**Matrix:** The matrix is that part of the nail bed that extends beneath the nail root and contains nerves, lymph and blood vessels. The matrix produces the nail and its cells undergo a reproducing and hardening process. The matrix will continue to grow as long as it receives nutrition and remains in a healthy condition.

**Mildew:** A white or grayish coating formed by fungi on plant leaves, cloth, paper, etc..

**Mix Ratio:** Relation in degree or number between two things.
**MMA (Methyl Methacrylate):** MMA in its liquid form has been banned for use in the nail industry due to the severity of allergic reaction and damage to the natural nail plate. It adheres so tightly to the nail plate that it can literally rip the nail plate from the nail bed due to heavy pressure from a blow or trauma to the nail. MMA is so hard that it cannot be safely removed from the nail plate by soaking in any form of remover -- it must be filed from the nail plate with a heavy abrasive.

**Mold:** Any of various fungous growths formed on the surface of organic matter. Mold is not a human pathogen.

**Monomer:** Individual, reactive chemical units which may be linked together to form a polymer.

**Nail Bed:** the nail bed is the portion of skin upon which the nail plate rests. It contains blood vessels that supply nutrients to the fingertip.

**Nail Plate:** The hard keratin coating that protects the fingertip and underlying tissue.

**Nail Root:** The nail root is at the base of the nail and is embedded underneath the skin. It originates from an actively growing tissue known as the matrix.

**OSHA:** Occupational Safety and Health Administration.

**Overexposure:** Chemical hazards caused from prolonged, repeated exposure beyond levels specified as safe by regulatory agencies.

**Pathogen:** A micro-organism which is capable of causing disease.

**Polymer:** Any of numerous natural and synthetic compounds of unusually high molecular weight consisting of repeated linked units, each a relatively light and simple molecule.

**Polymerization:** The process of forming a polymer. To unite two or more monomers to form a polymer.

**Prep:** Prep contains chemicals such as Ethyl and/or Butyl Acetate, Isopropyl Alcohol and other ingredients. Prep is a temporary dehydrator and deep cleanser that will remove the moisture and some of the oils from the nail plate layers. It will disinfect the nail plate, is a pH balancer, and aids in physical and chemical bonding. The effects of prep will last approximately 30 minutes before the nails oil and moisture are replaced by natural means.

**Primer:** Primers are usually made with 100% pure methacrylic acid. Although primers are caustic to skin, they are not caustic to the nail plate. Primers aid in product retention because one end of the molecular chain is attracted to the oil molecule in the natural nail plate, and the other end is attracted to the monomer molecule. Primers act like double-sided sticky tape.

**Proximal Nail Fold:** The proximal nail fold is often mistaken for the cuticle. The cuticle is actually shed from the underside of the proximal nail fold. 'Proximal' means "nearest attached
end. The proximal nail fold acts like a gasket to seal off the matrix where the new nail plate is growing.

**Pterygium:** Pterygium is a reversal of the normal inward folding of the skin under the free edge of the nail plate, or the lateral nail folds. This can be caused by trauma and by certain skin conditions such as lichen planus. A dermatologist can sometimes remove this excess tissue by using acid peels or surgery.

**Sanitation:** Sanitation reduces the number of pathogens or bacteria on a surface.

**Sector Sculpting:** Structurally engineering the enhancement for proper balance.

**Sensitization:** Sensitization is a type of allergic reaction in which the affected person becomes increasingly sensitive to the allergy causing substance through repeated and prolonged contact.

**Sensitizer:** A chemical that causes a substantial portion of exposed people or animals to develop an allergic reaction in normal tissue after repeated or prolonged exposure to a chemical.

**Solehorn:** the rigid epidermis stays attached to the bottom of the nail plate until it grows beyond the free edge. This tissue is called the solehorn cuticle, and will eventually slough off by itself or is removed during a manicure.

**Solidification:** the process of turning from a liquid to a solid.

**Sterilization:** Sterilization completely destroys all living organisms on an object or surface.

**Strength:** The ability of a substance to withstand breakage under force.

**Vapour:** The gas formed by the evaporation of liquids.

**Ventilate:** To admit fresh air into a space in order to replace stale air.

**Viscosity:** The measure of a liquid's ability to 'flow'; related to the thinness or thickness of a liquid. You will see this term used on the MSDS.