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THE UNIQUENESS OF GO NATURAL WATERBORNE NAIL POLISH

Go Natural Nail Polish is an odorless, non-toxic, environmentally safe, hypoallergenic, water based nail polish, the product of a revolutionary new technology never before available to the cosmetic industry. Go Natural approaches the application, glamour and durability performance of traditional nail polishes but without the attendant drawbacks of foul odors, toxicity and damage to our environment and to your nails.

There are fundamental differences between waterborne and solvent borne systems, which manifest themselves in many, sometimes unexpected, ways-and nail polishes, are no exception to this general rule. Where these differences are fairly significant, slight adjustments in consumer awareness may be required through an innovative marketing program. A brief review of the fundamental science of these two systems will assist in understanding why this may be so.

Traditional Polishes

Solvent-based nail polishes are simple solutions of nitrocellulose resins in strong solvents. Nitrocellulose was originally chosen many years ago in its role as the major film-former in nail polishes because of its unique ability to form very hard, tough films very quickly. These films, or lacquers, are formed simply by evaporation of the solvents, which were used to dissolve the nitrocellulose in the first place. But because nitrocellulose is very difficult to dissolve, very strong solvents must be used. And because the nail lacquer solution, which results should dry very quickly, it is necessary to choose very strong, inherently bad-smelling solvents, which evaporate rapidly, thus quickly filling the air with obnoxious odors. The speed at which these nitrocellulose solutions form films and the rate at which hardness develops upon drying is strictly a function of how rapidly the solvents evaporate: in some cases, the lacquers are dry-to-touch in as little time as 45 to 60 seconds. Hardness increases only imperceptibly after this initial drying period.

By its very nature, this drying and hardening process is reversible. That is, solvent-based nail lacquers are easily re-dissolved by polish removers, which contain the same or similar solvents as the polish.

Water-borne Polishes

By contrast, the best water-borne nail polishes use a latex emulsion resin, very similar in its fundamental nature to latex paints or milk. This latex exists in the form of billions and billions of very

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small particles suspended in water. Unlike the fat particles in milk, though, these particles are very hard. As the water evaporates from the film the small particles will begin to touch each other and then at that point in the process need to coalesce together to form a very hard film. But if nothing is done to the formula to change things, these tiny particles could not possibly form a film when the water evaporates - they are much too hard, akin to sand particles and so would form nothing more than a pile of dry dust. To solve this problem, a small amount of an oil-like substance is added to the formula, which, over a period of time during the manufacturing process, slowly migrates into and is thoroughly absorbed by each particle of latex. Each latex particle has now been made quite soft, soft enough so that when the water evaporates from the film the squishy, gooey particles can merge and coalesce with each other to miraculously form an interwoven, tightly bound, shiny, still somewhat soft, but nevertheless water-impermeable, tack-free film. And until this oil-like substance evaporates or is washed away, the film cannot achieve the ultimate hardness the original hard particles are capable of forming. As the oil-like substance gradually disappears, though, over a period of several hours under normal drying conditions, the film becomes harder and harder. During this period, other, but slower, chemical-hardening reactions are occurring in the film as well, working in combination with the evaporation process to help produce ultimate hardness in about 24 hours time.

It will be clear also from this discussion that, unlike solvent-based polishes, any film, which is formed from a water-based polish, is no longer soluble- not in water nor in mild solvent systems.

Thus one may understand that, while solvent and water based polishes may seem at a casual glance to be quite similar and differing in just the solvents they use, they are in fact as different from one another as night is from day. For example: one is clear, the other is milky; one cures by simple reversible solvent evaporation, the other by creating a tightly knit film; one is easily redissolved, the other not so easily. Following is a brief discussion of how these and other fundamental differences can manifest themselves in practical ways.

Appearance in the bottle. The clear, unpigmented polish and some colors approach the milky appearance of non-fat milk. This milky appearance disappears upon drying, however. Dried polish, which normally tends to accumulate in the neck and on the inside of the glass in a partially used bottle, cannot be completely redissolved. Although pigment settling and color float is very minor, it is sometimes manifest by a light ring of color at the top of the bottle. This slight degree of separation has no effect on the color of the polish. Where heavy special effects pigments are used, a slight milky color may appear at the top. A light shake or two of the bottle after the shaking bead is loose will solve the problem.

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Odor: Odor is extremely low, nearly nonexistent.

Toxicity: There are no toxic chemicals. The resins are polyacrylic and polyurethane latexes with residual monomers well below 100 ppm. The only co-solvent is a diglycol ether. All colorants are FDA-certified for cosmetic use.

Nail Preparation: Healthy nails naturally produce a mixture of oils and proteins, which serve to protect, beautify and enhance their appearance. The strong solvents in normal polishes act to remove these substances from the nail and in so doing prepare the nail for better adhesion to the polish. Since this waterborne polish does not contain those solvents, the oils are not removed and so they remain to prevent direct contact of the polish and the nail surface. Thus, to the extent that the nail surface is oily, adhesion of the polish is compromised. To eliminate this possibility, it is best to clean the nails with polish remover or soap and water until they are squeaky clean and dried before applying the polish.

Dry Time: Go Natural dries to a tack-free state nearly as fast as regular polish. Multiple thin coats will dry faster than one thick coat. The second coat can be applied in 45-60 seconds, the third coat in perhaps 60-90 seconds. Cold hands, low temperatures and high humidity will prolong drying times. The water in the polish creates a sensation of coolness as it evaporates, a good indicator of recoat time.

Water Resistance: Hands can be used for normal activities including submersion in cold water after approximately 15 to 20 minutes without harming the polish. The polish will withstand washing and shampooing in hot soapy water after an hour or so.

Gloss: The clear base formulation and most crèmes exhibit high gloss. Because total solids in the formula is lower and dry films are therefore thinner, those colors containing high levels of large colored and special effects pigments will protrude through the dried film and lower the gloss.

Scratch and Abrasion Resistance: Unlike regular polishes which reach their maximum hardness in 30 to 40 minutes by solvent evaporation, Go natural must be given time to create a cured, tough film. We think it achieves approximately 75% of its final hardness in that short time period but then continues to build in hardness over the next few hours, reaching its ultimate hardness in 4 to 6 hours. Thus, one should avoid those activities, which could scratch the surface or abrade the tips for several hours and certainly shouldn't work in the garden or overhaul an engine without gloves until 6 to 8 hours have passed. Short nails for active women might begin to show slight wear at the tips in

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approximately 2 to 3 days but, in general, if care is exercised in the first several hours of the first stages of curing, acceptable appearance for 4 to 5 days is achievable. If the polish is applied in the evening, it will have developed adequate durability for most activities by the next morning.

Touch-up: Because the films are indeed quite thin unless multiple coats are applied, worn areas at the tips and even scratches and chips can be touched-up to re-create a nearly new appearance, adding a day or two to the effective durability. And because the polish is odorless and dries quickly, this is easy to do anywhere, anytime.

Ease of Removal: The process of forming a harder and harder polish as the hours pass is linked to unique chemical reactions which occur deeply within the film to transform the water-loving materials inside the bottle into a water-impermeable, water-resistant film on the nails. This process takes time, but it also acts to create a film, which is increasingly more difficult to remove as time passes, particularly from dry, porous nails or toenails. It is very difficult to remove after more than 5 to 6 days of use, even with acetone-based removers. Before that point is reached, however, it can be removed quite simply and easily with our Go Natural nail polish remover.

Conclusion: These considerations have made it clear to us that a waterborne polish cannot be used as a mere drop-in replacement for traditional solvent borne polishes. However, we firmly believe that with consumer education this waterborne polish can compete against solvent borne products, particularly with consumers who are already motivated to try a non-toxic, odorless, hypoallergenic polish.

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