CTPA Guideline on Artificially Enhanced Nails and Minimising the Risk of Allergy

June 2019

Acknowledgements

The Cosmetic, Toiletry and Perfumery Association (CTPA) wishes to thank Marian Newman, Nail Services Expert and author of *The Complete Nail Technician* and *Nailed It*, members of the CTPA Artificial Nail Advisory Group and CTPA-British Society for Cutaneous Allergy (BSCA) Working Group for their time, advice and support in the preparation of this document.

The CTPA welcomes comments, questions or suggestions for improvements to this guideline.

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Artificially enhanced, sometimes known as 'build-up' nails, are created on top of the natural nail and may extend the natural length with plastic tips or using a 'form' as a base to extend. There are two types of artificially enhanced nails: acrylic, using a Liquid and Powder (L&P) system; and UV cured gel.

1.1 Acrylic (L&P) Nails

Acrylic (L&P) nails are prepared by mixing a liquid acrylic monomer with a solid acrylic powder to form an uncured gel-like semi-solid slurry which is then sculptured by brush onto the natural nail, or over a plastic tip or form. The liquid acrylic monomer is usually a mixture of methacrylate monomers (most commonly ethyl methacrylate (EMA)) and an ingredient to start the hardening process called a catalyst or synergist, usually of the amine class (dimethyl para toluidine or similar). The solid acrylic powder is usually made from methacrylate polymers (most commonly polyacrylates such as polymethylmethacrylate or polyethylmethacrylate), pigments and an ingredient to start the hardening (polymerisation) process called an initiator (usually benzoyl peroxide (BPO)). The uncured gel-like semi-solid is sculpted into the nail shape and then it hardens to its cured, or solid, form over approximately the next five minutes. It can take several hours for the system to fully cure.

1.2 UV Gel Nails

UV Gel nails require curing or hardening by ultraviolet (UV) energy from a UV or UV LED lamp. The gel, usually a mixture of short urethane polymers and methacrylate monomers (such as 2-hydroxyethyl methacrylate (HEMA) or hydroxypropyl methacrylate) and a photoinitiator to begin the polymerisation process, is sculptured on the natural nail to form the final shape and then cured under a lamp which emits UV energy.

2. Artificial Nails and Allergy

Dermatologists are seeing increasing numbers of patients in their clinics with dermatitis or inflammation of the skin linked to the use of L&P and UV gel nail systems. The reactions are not always limited to the finger area around the nail itself but can arise wherever the nail contacts the skin, such as on the face for example. Dust generated from filing or removal of incompletely cured nail coating can also be associated with allergic reactions.

These reactions are not simply irritation but true allergic contact dermatitis. In some cases they might look similar to the non-expert, because the patient is allergic or sensitised to the ingredient, they will react to the same substance wherever it is found, not just in nail products. Importantly, such allergies may be, and frequently are, lifelong.

The products that can lead to these reactions have ingredients that all come from a chemical family called 'acrylates'. These are safe to use in cosmetics if they are used properly and responsibly. In a small number of cases, the unreacted monomer can produce an allergic reaction if it comes into contact with the skin. This is not the case with the properly cured polymer.

The cured or polymerised nail is unlikely to cause a problem but the liquid monomers in the starting material may, over time, if exposure to the skin is high enough, lead to allergy. The risk may be minimised by ensuring the liquid monomer or gel is not allowed to contact the skin itself, that the gel is cured fully by using the curing lamp correctly and that any uncured gel is removed completely and in such a way that the tissue or pad used does not contact the skin of either the customer or the nail professional. UV gel that is improperly cured can release the monomers when filed or removed by soaking off using acetone and then come into contact with the skin. This most commonly happens when an inappropriate light source is used to cure the product or has not been applied for the length of time instructed by the manufacturers.

In the case of L&P acrylic nails, the liquid and powder system should be matched and formulated to work together. It is the liquid that has the potential to cause allergy and contact with the skin needs to be avoided during the application. The ratio is also very important, if the system is too wet, unreacted monomer will remain in the polymerised coating and this can be released on filing or removal. The brush used to apply the product should not touch the skin as this may, over time, result in an allergy. An unmatched system or one that is used improperly, as with UV gel, could allow the uncured product to be released onto the skin during filing or removal.

3. Potential Wider Impacts of Acrylate Allergy

This is very important, not just because a re-appearance of the reaction is risked even if another brand is chosen but because the key ingredient is to be found in medically important settings. For example, some dental restorative materials that are cured with UV light can contain the same ingredient. This substance may also be used in medical prostheses such as replacement joints and the adhesives used to fix them in place in the bones. Obviously, an allergic reaction to those would have serious consequences for someone.

If you are a nail professional and develop this allergy, you could find that it severely limits or ends your career.

4. Safe Use

4.1 Avoid Skin Contact

Safe use requires that the acrylic system or gel system is not allowed to contact any part of the skin and that it only comes into contact with the nail itself. This requires very careful application. This is difficult to achieve when attempting to apply these products at home and the use of a fully-trained and competent nail professional is recommended. Allergies arising from the misuse of acrylates can be reduced with education and correct usage.

4.2 Apply to Healthy Nails Only

Furthermore, it is important that the nail is not damaged before applying the gel. Damaged nails could increase the absorption of the ingredient and the risk of developing reactions. Do not remove nail ridges and do not allow someone to do that to your own nails. Do not apply to nails if the nail is cracked, split or bruised and do not apply if the finger area surrounding the nail is looking sore or inflamed or the skin is broken.

4.3 Wear Appropriate Gloves

Wear the right sort of gloves when applying the product to nails and when removing any uncured gel after the procedure is completed. Treat those tissues or wipes as contaminated and do not allow them to contact the skin; handle wearing gloves.

We understand that industry best practice recommends that for the nail professional, nitrile gloves are used of 0.8mm thickness and changed after every client. For those who already have an allergy, two pairs of gloves to be used at the same time are recommended. These are recommended to be changed every 15 minutes as the chemicals involved can penetrate through the gloves given sufficient time. Gloves that have a long, tight fitting cuff are also recommended.

4.4 Do Not Reuse Gloves

Never reuse gloves. Washing them does not remove the material and wearing them inside out a second time simply increases the risk to the wearer of the gloves.

4.5 Removal of Gloves

Removing gloves without the contaminated part of the fingers touching the skin requires a technique that needs practice. If you want to check your technique, put a little paint onto the glove fingers and then try to remove the gloves without getting any paint on yourself.

4.6 Correct Usage of the Lamp

Always check whether the brand of gel polish you are using is compatible with a UV LED lamp, a UV lamp, or both. Different brands of product may require the use of specific lamps tailored to ensure adequate cure of that brand. It is not possible to tell just by looking at the nail whether it is fully cured. Always follow the manufacturer's instructions.

Remember to always use the appropriate lamp for a sufficient length of time to properly cure the gel system. Again, always follow the manufacturer's instructions. Incompletely cured gel leaves both the customer and the nail professional at greater risk of exposure and subsequent allergy.

In addition, high quality bulbs from a reputable source should be used in a UV lamp and these should be kept clean. Dirty bulbs, or bulbs reaching the end of their life, may no longer provide the required intensity of UV light for complete curing.

4.7 Using Reputable Products

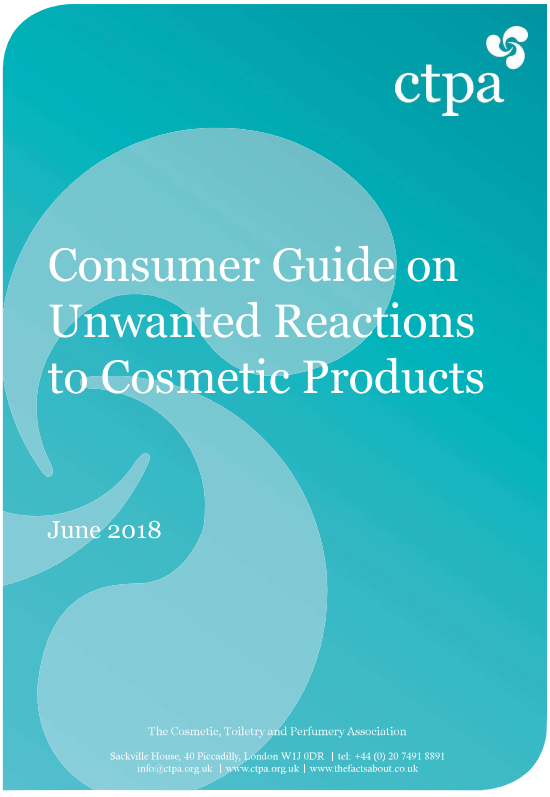
Cosmetic products on the EU market, which include L&P and UV gel nail products, must comply with the Cosmetic Products Regulation (EC) No. 1223/2009. This Regulation is seen as a gold standard for cosmetic safety across the world. Nail care professionals have a duty of care to their clients and staff. Be suspicious of any products offered for sale from unusual places such as less well-known internet sites and always be wary of offers that seem 'too good to be true'.

5. Further Help and Advice

CTPA has a consumer website, www.thefactsabout.co.uk, which has sections on understanding allergy, specifically with regards to artificial nail systems.

A booklet is available to download from thefactsabout website, which has been created to help explain to consumers what to do if they have a reaction to a cosmetic product and why it is important to inform the cosmetic product manufacturer.

In addition, CTPA has produced an ingredient labelling help note, providing the cosmetic ingredient names to look out for on pack if you have been diagnosed as allergic. This booklet is also available from thefactsabout.



CTPA The voice of the British cosmetics industry

The Cosmetic Toiletry and Perfumery Association (CTPA) is the trade association for the UK cosmetic and personal care industry.

The Association's role is to advise manufacturers, distributors and suppliers about the strict legal framework for cosmetics, to represent industry views to UK Government, and external stakeholders and help promote information to the media on issues relating to the safety of cosmetic products. The CTPA is the voice of the British cosmetics industry and provides the most up-to-date interpretation of, and guidance on, regulatory matters affecting cosmetic products in the UK and Europe.

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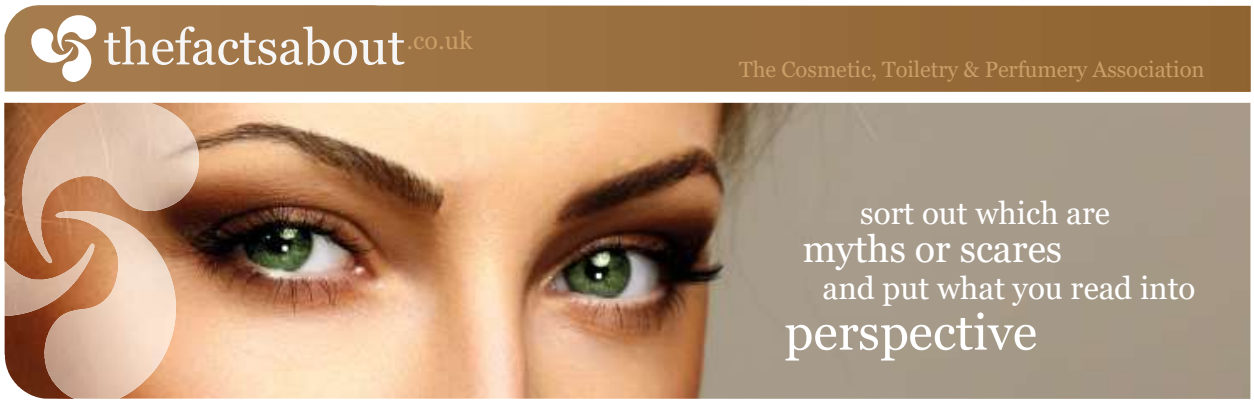

The CTPA's consumer website www.thefactsabout.co.uk aims to provide factual advice, best tips and information on the science behind the products we use and enjoy daily. There are also sections on allergy and ingredient labelling.