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Esthetician – Nail Technician Powder / Liquid Systems

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Powder / Liquid Systems

Rationale

Why is it important to learn this skill?

Creating artificial nails is the central act for an esthetician-nail technician.

Outcome

When you have completed this module, you will be able to:

Understand the theory behind powder / liquid systems and create a full set. Crucial to creating structurally sound nails is the visualization of the apex and c-curve.

Objectives

- 1. Describe manufacturer's specifications.
- 2. Describe mixing ratios, light-curing systems, air-drying systems, and cautions.
- 3. Describe nail preparation steps of application.
- 4. Describe zones and bead placement.
- 5. Describe product application for correct c-curve and arch.
- 6. Describe filing and shaping.
- 7. Describe finishing sealing.
- 8. Demonstrate application of powder/liquid systems on one full set of nails.

Introduction

Powder / liquid systems are made of two components, that when mixed, undergo polymerization to form a plastic. The powder is a polymer, and the liquid is a monomer. The plastic is referred to as 'acrylics'. The term acrylic refers to a broad array of synthetic resins and fibres. In the Canadian market, gel became the dominant material for artificial nail enhancements, beginning in the 1990's. Older forms of acrylics had a strong, distasteful odour; the colour range was limited; and they were potentially hazardous to health, containing MMA; gels were also easier to file. As of the time that this ILM was published, powder / liquid systems have been increasing in popularity. The rise in popularity is based on several factors: when acrylics are filed,

the particles are heavy and they sink (unlike gel particles that float upwards in the air); the colours have expanded; custom colour blending options are better than gel options; and acrylics function better in humid environments. A potential disadvantage of acrylics is their porous nature.

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Objective One

When you have completed this objective, you will be able to: Describe manufacturer's specifications

Background

Powder / liquid systems consist of a polymer powder and a monomer liquid. After the two are mixed, they undergo a chemical reaction (polymerization) to form a new substance that is commonly called 'acrylic.' Two monomer liquids are in use today: ethylmethacrylate and or odourless monomer liquid. Methylmethacrylate (MMA) liquid was previously in use, but is not allowed in Canada due to its negative health effects. The monomer liquids often contain other monomers that are used aid in curing, colour stability, durability, and shelf life. Colouring is added to the powder component.

Objective One Self-Test

1) What additives are added to monomer liquids?

Objective One Self-Test Answers

1) Monomers that aid in curing, colour stability, durability, and shelf life are added to monomer liquids.

Objective Two

When you have completed this objective, you will be able to: Describe mixing ratios, light-curing systems, air-drying systems, and cautions.

Mixing Ratios

Before discussing the correct mixing ratios of powder to liquid components, it must be stated that the powder and liquid should both come from the same manufacturer and be designed to work together. Always follow the manufacturer's specifications when mixing powder / liquid systems. Following the manufacturer's specifications will result in an artificial nail that has maximum durability with complete curing. In general, powder to liquid ratios can vary from 1:1, to 1:2. A ratio of 1: 1 means equal amounts of both powder and liquid; this ratio is often called 'dry'. A mix that is too dry may result in discoloured and/or brittle nails. A ratio of 1:2 means that there is double the liquid; this ratio is often called 'wet'. A mix that is too wet may result in nails that are weak; in addition, skin irritation may occur for both the nail technician and client. A ratio that is between dry and wet is often called 'medium'. A medium ratio is the most common ratio used by technicians.

Air-Drying Systems

Air-drying systems are the traditional acrylic systems. They range in set time from slow to fast. Set times will vary between manufacturers; as well, manufacturers will make products that have different set times. Set times are also affected by things such as room temperature, finger temperature, mixing ratio, and humidity.

Light-Curing Systems

Light-curing powder / liquid systems have the workability of traditional acrylics, but they will not air-dry. This allows the technician to work on the nail until they are satisfied; there is no time pressure of the nail curing because of contact with the air.

Polygel (Hybrid) Systems

Polygel is a newer type of light-curing system. Polygel is a system that uses a liquid that is not a monomer. The 'brush play' is the same as a standard acrylic system. In

this system, a paste is squeezed from a tube, a spatula is used to cut the paste from the tube and place the paste on the nail, the brush is wetted, and the paste is manipulated on the nail. There is no need to measure ratios. Polygels can be referred to as hybrid systems that have characteristics of both gel and acrylic systems. They are included in this ILM because of the brush play similarities.

Dip Systems

Dip systems are different from traditional acrylic systems; additionally, dip systems are controversial for reasons of sanitation, disinfection, and sterilization. At issue is the re-use of the colouring powder for different clients and possible cross-contamination. For more information regarding cross-contamination and how to avoid it, see EST 1. A best practice is to separate the powder into single-use bags and dispose of the powder when the service is complete.

Objective Two Self-Test

1) Where does a technician find the mixing ratio for a new product?

2) What can result from mixture that is too dry?

3) What can result from mixture that is too wet?

Objective Two Self-Test Answers

- 1) The mixing ratio for a new product is found in the manufacturer's specifications.
- 2) If a mixture is too dry, the nails might turn out to be discoloured and/or brittle.
- 3) If a mixture is too wet, the nails will turn out to be weak, and the client's skin might be irritated.

Objective Three

When you have completed this objective, you will be able to: Describe nail preparation steps of application

Preparing the natural nail plate is the basis for anchoring a well-structured nail. Improper nail preparation is what most nail technicians will battle because it will directly result in lifting problems. The main objective to prepare the nail is to remove all shine and to create a slightly etched surface. A natural nail plate will appear shiny when it is smooth or it has been covered with—mostly—oil from the skin. Preparation of the natural nail plate is the single most important step to creating nails that adhere well, and will result in client satisfaction and retention.

Review EST 1 for preparing tools, equipment, and stations. This first section describes how to prepare the natural nail for a full set. The preparation for tips and forms is mostly the same; where it is not, this section will distinguish the differences. The final sections describes preparing the nails for a fills.

Nail Preparation

Manual nail preparation:

- Push back cuticle with a cuticle pusher at a 45° angle, and then gently scrape the dead skin cells and debris forward. See photo to the right.
- Wipe the skin cells and debris away with a dust brush.



• Etch the cuticle area with a medium grit file. 180 grit works well. Hold the file as per the photographs below. Rough up the surface to remove the shine. Pay special attention to the sidewalls. Pull back the skin of the sidewalls and rough up the nail plate along the sides.



• Shorten the free edge as per the photographs below. Watch for an extended hyponychium and make sure not to cut it.





Cleanse the nail. See the photograph to the right.





Inspect for any shiny areas of the nail plate. If shiny areas are found, file, buff, and cleanse them. The photograph on the left shows a completely prepared nail.

Buff the entire surface with a buffer block. See the photograph to the left. Electric nail preparation:

- Push back cuticle with a cuticle pusher at a 45° angle, and then gently scrape the dead skin cells and debris forward. Wipe the skin cells and debris away with a dust brush. This procedure is the same for manual preparation.
- If using a diamond cone bit on a low RPM, gently rough up the surface to remove the shine. Hold the bit at a 45 ° angle to the nail plate and rough up the perimeter of the nail plate. Pay special attention to the sidewalls. Pull back the skin of the sidewalls and rough up the nail plate along the sides. Laying the bit flat along the nail plate may be uncomfortable for clients.





The following four steps are the same as in the manual preparation.

- Shorten the free edge.
- Buff the entire surface with a buffer block.
- Cleanse the nail.
- Inspect for any shiny areas of the nail plate. If shiny areas are found, file, buff, and cleanse them.
- A second method of electric nail preparation involves a fine arbor band instead of a diamond bit. Before touching the client with the arbor band, use a file to dull the rim of the band. This will reduce the chances of cutting a client.
- Push back cuticle with a cuticle pusher at a 45° angle, gently scraping dead skin cells and debris. (The same as for manual preparation).

• On a low RPM, use the arbor band in the same process as the diamond bit. The arbor band may be more comfortable than a diamond bit when laid flat on the nail plate.



Objective Three Self-Test

- 1) What are the six steps for manual nail preparation?
- 2) Why is it important to inspect the nail plate after cleansing?



Objective Three Self-Test Answers

- 1) The five steps for manual nail preparation are: push back cuticle, etch the cuticle area, shorten the free edge, buff the nail plate, cleanse the nail plate, inspect the nail plate.
- 2) It is important to inspect the nail plate after cleansing in order to determine that the nail plate has been filed, buffed, and cleansed. If the plate has not been entirely prepared, the artificial nail will not adhere.

Objective Four

When you have completed this objective, you will be able to: Describe zones and bead placement

Brushes and Brush Maintenance

Before zones and bead placement can be discussed, brushes and brush maintenance must be discussed. Brushes are very important in powder liquid systems. Brushes must be made of sable hair. This material will hold the liquid component, and the liquid is needed to attract the powder component. Brushes range in size from 2 (the smallest) to 24 (the largest). Most nail technicians use brushes that range from 8 to 14. Brushes can be flat or round, but they all come to a point. The bristles of a new brush are stiff. Loosen the bristles with the thumb until no more debris falls from the brush.

A major problem to avoid is getting the powder and liquid components into the centre of the brush. Once there, they will harden and ruin the brush's performance. The powder and liquid components will penetrate into the brush if the bead is too wet. A bead formed with the proper ratio will sit on the surface of the brush.

When a brush has become contaminated by polymerized material, it is best to soak the bristles in monomer for at least 4 hours. After the polymerized material is dissolved, remove the brush from the monomer and dry them on a paper towel. Dry them on a paper towel by pulling them gently while rolling them. They can be stored hanging with the bristles down or by laying them flat.

Picking up Beads

A small amount of monomer liquid is poured into a dish called a 'dappen' dish. This liquid must be discarded after use. Dip the brush into the monomer. The first time the brush is dipped, push it flatly against the bottom of the dish to force out any air. As the brush is withdrawn, wipe the side of the bristles on the rim of the dish to remove excess liquid from some of the bristles. Rotate the brush so that the wet bristles are now facing downwards. Place the wet bristles in the powder. If the brush is laid down at 90 degrees to the powder, a small bead will be formed on the tip. If the brush is laid down flat, a large bead will be formed. The longer the brush is held in contact

with the powder, the drier the bead will be. As the brush is raised, the bead will stick to the bristles. When the bead contacts the nail, it will stick to the nail. If the brush has hardened polymer in the bristles, the bead will not release cleanly onto the nail.

Traditional Three Bead Placement and Zones

Three bead placement derives its name because a complete nail is formed from three beads. The first bead is placed in zone 1, and it creates the free edge. See the photograph to the right. If the first bead was too small, place a second, small bead at the desired free edge and walk the second bead upwards to meet the initial bead. When zone 1 is complete, the free



edge has been created. See the photograph below and to the left.





The second bead is placed on the apex, which is zone 2. See the photograph above and to the right. This bead is worked from apex to free edge. The second bead is thick at the apex, and when this bead is worked toward the free edge, the thickness decreases. When this bead reaches zone 1, it is pulled 1 mm over top of the edge of zone 1, and is

then feathered flush with the surface of zone 1. Because bead 2 builds the structure of the apex, inspect zone 2 after the bead has been shaped. Look for any low spots. If there are any low spots, add a small bead to fill them in. See photograph to the right.





The third bead is applied wetter because it will blend in all three zones. Be careful not to touch the cuticle with the product. The third bead is placed in zone 3, near the cuticle. See the photograph to the left. This bead is worked over top of zone three, and then it covers zone 2 and zone 1.

If building with a coloured powder, for example when making a French nail, work in smaller, drier beads. To achieve a dry bead, pick up the bead as described above. Touch the back of the brush to a paper towel in order to release some moisture. Next, place the bead exactly where it needs to be. The bead placement must be exact because the coloured product will show after the nail is completed, and the dry bead must not be overworked.

Use a flesh-coloured powder when performing reverse French applications, when working on clients with chewed nails, and clients with short nail beds. The flesh-coloured powder will create the illusion of a full nail bed or an extended nail bed. The first bead is placed in zone 2 to create the smile line, and the second bead is placed in zone 1. They are used to extend a camouflaged nail bed out to any shaped smile line. Use the brush to create the backwards smile line. Lastly, clear product is used to create the apex and encapsulate the entire nail.

When placing beads, the finger is always pointed downwards. Beads are always placed at the top of the zones so that, if the bead runs, it runs inside the zone and not outside of it. The photograph to the right shows a nail that has the first two beads placed. Notice that zone 3 (the cuticle) has not yet been placed.

Pat press pull are the three movements that are usually used. All done with the brush. Pick up the desired ratio of components on the brush, they will automatically form a bead. Place the bead on the nail, and then clean the excess liquid off of the brush. This also gives the bead a few



seconds to change from appearing very wet to a state of fully mixed. Once fully mixed, the bead will appear shiny. Once the bead changes appearance, it is ready to be patted, pressed, and pulled into shape. The method of progress is to place the bead at the top of the zone and work it upwards to construct the top of the zone, then place the next bead below and continue working. The nail is constructed from high to low. The bead can be 'walked' by putting pressure on the belly of the brush.

Objective Four Self-Test

1) What are acrylic brushes made of and why?

2) How does the brush contact the powder when a large bead is desired?

3) What areas are the three zones?

4) Why must the finger point downwards when building with acrylics?

Objective Four Self-Test Answers

- 1) Acrylic brushes are made from sable hair, because it absorbs the liquid monomer.
- 2) When a large bead is desired, the brush contacts the powder at a low angle.
- 3) Zone 1 is the free edge, zone 2 is the apex, and zone 3 is the cuticle.
- 4) When building with acrylics, the finger must point downwards, so if the bead runs, it will run inside the zone.

Objective Five

When you have completed this objective, you will be able to: Describe product application for correct c-curve and arch

Introduction

The application of product differs depending on whether tips or forms will be used. When tips are used, the free edge is already intact for the technician. When using a form, the entire artificial nail—including the free edge—must be created. Sculpting with forms allows the technician to produce a wider variety of free edge shapes. Tips can be customized only to a limited amount. Since tips are already formed to a mild ccurve, they do not offer much opportunity to vary the c-curve. In opposition, forms offer a great opportunity to determine the c-curve. Regardless of whether tips or forms are used by the technician, in both systems, the product only enhances the shape that is created. The structure that is created by form placement or tip customization must be structurally sound. For more information on tips and forms, see ILM EST 28. This ILM will cover applying product on both tips and forms.

Apex

Before building components can be applied, it is necessary to determine the apex of the nail. An apex is created by building the thickest amount of product over the nail's stress area. If a person presses down on the free edge of their nail, they will notice a white band appear under the natural nail plate. This white area is the area of the nail that receives the most stress during trauma. It is the area where



the phalange presses against the nail bed. This is the impact zone for any trauma to the nail. Artificial nail product will be thickest at the apex for maximum strength. When an artificial nail is viewed from the side, the product begins thin at the cuticle, and then thickens as it moves toward the free edge. Product is thickest at the apex, and begins to thin as it approaches the free edge. The product is 1mm thick at the free edge. The placement of the apex will shift slightly with the length of the artificial nail. If an artificial nail is made very long, the apex is placed closer to the cuticle. As the length of the nail increases, the apex will be thicker and slightly longer from cuticle to free edge.

Shaping and filing a smooth transition along the length of the artificial nail is both aesthetically and structurally important. If an artificial nail is viewed from the side, and a divet has been created, the divet will be a weak point. When looking at an artificial nail from the side, the overall structure is a gradual arch. Arches are very strong shapes. Any defect in the shape will cause a weak spot. The apex balances the c-curve and provides longitudinal strength to the nail.

C-Curve

The c-curve balances the apex and provides lateral strength to the nail. When looking down the barrel of the nail, the free edge is shaped in a curve, and the product over top of the nail plate is shaped in a matching curve. Product over the nail plate is thickest at the centre of the nail (to match the thickness of the apex) and tapers as it approaches the paronychium where it is 1mm thick (product



remains 1mm away from all skin contact). At the free edge, the product will be 1mm thick for the entire c-curve. Artificial nails that are made for shows have a c-curve that is half of a circle. Salon-level nails have a c-curve that either matches the client's natural curve or is slightly more curved. Regardless of a c-curve's shape, it must be symmetrical as viewed down the barrel, and have an equal thickness of product on both sides.

To maintain a proper c-curve structure, it is imperative that the artificial nail extend straight out from where the sidewalls end. *The sidewalls* are the side edges of the natural nail plate. Some sidewalls are parallel, while others move apart as they approach the free edge. Maintain a constant 1mm thickness of product down the entire length of the sidewalls, past the end of the natural nail, and across the free edge.

Pinching

Pinching is a controversial technique. It is used to create an exaggerated c-curve by clamping the sidewall free edges with a tool. This technique is controversial because some nail technicians incorrectly clamp the sidewall of the natural nail. Over time, clamping the natural nail sidewall causes pain to the client, and can result in damage to the natural nail. In addition, technicians may clamp the free edge of the nail with too much force. Even though the clamp is in the correct position, the client will be hurt. If the clamp is ill-placed, the c-curve will be asymmetrical. The clamp must be placed at the correct time. If the clamp is applied too soon, the c-curve will be deformed; if the clamp is applied too late, it will not have any effect. The correct time to apply a clamp is to test a nail by squishing it between the thumb and index finger. If the free edge compresses and then springs back, it is ready to be pinched. Commonly, while a technician is working on one finger, the prior finger is being pinched. The clamp follows behind the finger that is being created. The photograph below and to the left shows a nail before pinching. The second photograph shows the proper technique for pinching, and the final photograph shows the finished product.







Fan Nails

Determining the shape of the sidewalls can be done by holding a file parallel from a top corner of a cuticle to the free edge corner of the nail plate. If the sidewalls slowly separate as they move from the cuticle to the free edge, the nail is called a *fan nail*. Although the nail plate of a fan nail may have a c-curve at the cuticle, the c-curve will flatten our significantly by the time the free edge is reached. The diagram to the right shows an exaggerated fan nail.





The following description is not exactly what is done, its purpose is to show—conceptually—how to avoid a very damaging problem that many inexperienced nail technicians create.

Conceptually, visualize making an artificial nail shape to match the photograph on the left. The artificial nail would be flat and shaped like a fan (as shown by the dotted lines).

Next, curl the flat fan by raising it in the middle, similar to

pitching a tent. The shape as shown to the left is the shape that nail technicians want to achieve. The sidewalls of the artificial nail plate are parallel, and an aesthetically pleasing c-curve is created. The artificial nail plate as shown in the photograph to the left is built by the technician. *This is the correct way to build artificial nails for a client with fan nails*.

An inexperienced nail technician will not build the sidewalls of the artificial nail correctly. Instead of forming the sidewalls parallel to the paronychium, along the entire length of the sidewall, the technician will begin the sidewall at the cuticle, 1mm away from the skin. However, as the sidewall is constructed toward to the free edge, it pulls away from the free edge. At the point where the paronychium meets the free edge, a large is gap is visible, and the artificial nail extends past the free edge with both sides parallel. The sidewalls are filed to final shape. Although this construction will create a visually pleasing nail, the filing of the side walls will cause permanent damage to the natural nail. This construction eventually causes the natural nail plate to lift from the nail bed (onycholysis) at the corners, and the recession of the free edges into the fingers. Also, ingrown nails (onychocryptosis) may occur.

Sandwiching Versus Cosmetic Colouring

Sandwiching colours is performed by some nail technicians. Colour is placed first and then encapsulated in a coating of clear acrylic. This technique allows for embedded art. As a con of this option, if a client wants their colour changed, a great deal of filing is required, or the artificial nails must be soaked off.

Cosmetic colouring occurs when the layer of colour is applied after the final shaping and then sealed underneath a sealing component. As a pro of this option, if a client wants their colour changed, very little filing is required. As a con of this option, a slight allowance must be made when finish filing, because the colour layer will add thickness to the overall nail. After the sealant component has been added, the artificial nail plate may be too thick and the desired shape has been lost. When finish filing, file 1 or 2 mm deeper to allow for the thickness of the colour layer.

Lastly, nails can be buffed to a shine, or a sealer gel is applied to add a very thin, highgloss coat that protects the enhancement from chipping, scratching, yellowing, and moisture penetration. Sealer gel is low viscosity and can be clear or coloured. It is important to note that—if the nails are buffed to a shine—then they are porous.

Objective Five Self-Test

1) What is the best practice for storing brushes?

2) What is the apex of an artificial nail?

3) What imperfection can cause a weak spot in the apex?

4) When using a form, how is the fan nail corrected?

5) What negative outcome can occur if the sidewalls of a natural nail plate are filed?

6) What indicates that a nail is ready to be pinched?

Objective Five Self-Test Answers

- 1) The best practice for storing brushes is to put their lids on and lay them in a drawer.
- 2) The apex of an artificial nail is the thickest point of an artificial nail as viewed from the side. It is located above the impact zone, or 'stress area.' Any trauma to the nail will have the greatest effect on this area.
- 3) A divet in the apex will cause a weak spot.
- 4) When using a form, a fan nail corrected by increasing the c-curve.
- 5) If the sidewalls of a natural nail plate are filed, permanent damage will be caused to the natural nail.
- 6) A nail is ready to be pinched when it is squeezed between the thumb and index finger, and the nail flexes and returns to its shape.

Objective Six

When you have completed this objective, you will be able to: Describe filing and shaping

Selecting Shapes for Clients

Trends in nail shapes change constantly. This ILM focuses on five basic shapes—called salon nails—but it is recommended to take a shaping class once per year to stay up to date on the latest trends. Clients will have preferences, yet it is also practical to factor in their lifestyle.

The shape of the hand and natural nail also plays a part. The shape of the cuticle should influence the shape of the free edge. For example, if a cuticle is slender, then the artificial nail would be balanced if the free edge was matching in width and arch.

The maximum length of a salon nail is based on the rule: *the natural nail bed is two-thirds of the overall artificial nail length*. This rule results in an artificial nail that is aesthetically pleasing and structurally sound. A client who is new to artificial nails should be advised to begin with a set that is much shorter than the maximum. Advise clients that the nails will grow longer than they are initially created.

Filing and Shaping the Free Edge

To check if acrylic nails are ready to file, tap the artificial nail with a brush. An uncured nail will produce a sound like a 'thud', while a cured nail will produce a sound like a 'clink'. Acrylic generally does not have an inhibition layer like gel nails. During the first filing, a layer—similar to an inhibition layer—will roll off. The ceramic bit shown below is defined as 'coarse' and is used to remove material.







Shown above are several bits that can be used for filing acrylic nails. These bits are produced in two main materials: ceramic and metal. The bit that is shown on the far left is an older-style bit that has fallen out of use. Its shape was not ideal for getting close to the cuticle and skin, and it made an unpleasant sound. Newer-style bits have better shapes and many are manufactured with a safety edge that will not cut the client. The white bits in the centre are ceramic, and the three bits on the right are tungsten carbide. Ceramic bits tend to generate less heat when filing. All of the bits come in various grits. It is a good practice to experiment with several different bits to find the ones that are most effective.

The next step is to create the free edge. The exact procedure depends on the final, desired shape. The basic salon shapes are: square, squoval, round, oval, and almond. They are shown in the two photos below, in the order listed.







All of the finger and hand placements referred to are described to protect the client's skin. If this procedure is done correctly, the client will never be harmed. In addition, this ILM describes the procedures being performed by a righthanded technician. The photograph to the right shows a right-handed technician loosely holding a file. The file is held this

way while working, balanced between the thumb and the second finger. The index finger is only used for stability. The thumb slides forwards and backwards along the file to allow for more area of file to be accessed. The whole arm moves in concert with the wrist. This position is used for filing the nail around the sidewalls, cuticle, and barrel work. The file should never be held in the palm of the hand.

Proper file position will prevent 'blind filing' when the technician cannot see the surface being filed because the file is blocking the view. The photograph to the right shows the *incorrect* way to hold a file. This technique will result in blind filing.



Filing the square nail: a square nail comes straight out from the sidewalls. The artificial nail cannot be narrower than the natural nail plate. Some technicians make this mistake, but it results in ingrown nails. The correct way to have a square nail that appears thinner than the natural nail plate is to put a form on it and make the c-curve more extreme. If the free edge of a square nail is impacted at any point along the free



edge, the impact is distributed over the entire width of the free edge. This shape is the

best for clients with active lifestyles, or clients who are new to artificial nails, or clients who bite their nails. If a client is undecided as to which shape to choose, this is the best option. Hold the file held at 90 degrees perpendicular to the finger. Make sure all nails are uniform.



It is imperative to *not* file the sidewall of the natural nail plate in order to achieve the desired shape, especially the slender shapes such as almond. The slender tips derive their shape from creating the c-curve, *not* from filing the sidewalls.





The photograph to the left shows the side view of a finished square nail. Notice that the free edge extends straight out from the sidewall of the natural nail plate.



Filing the squoval: first, create a square shape, and then tilt the file slightly, under the free edge (see the photograph on the left). File the free edge with the file in this position, this produces the squoval shape. The file is held between 70 and 80 degrees. Slightly swipe the free edge toward the centre of the nail. Make sure to only file the corner of the artificial nail. Make sure all nails are uniform. The photograph on the right shows the sidewall of the artificial nail. Notice how it comes straight out from the sidewall of the natural nail plate.

Filing the round nail: the round nail comes straight out from the sidewalls. Hold the file at a 65 degree angle (as seen in the photograph on the left) and file the free edge to the desired length. Make sure all nails are uniform. The photograph on the right shows the sidewall of the artificial nail. Notice how it comes straight out from the sidewall of the natural nail plate.





Filing the oval nail: the nail projects straight out from the sidewalls. Hold the file at a 40 degree angle and file the free edge to the desired length. Make sure all nails are uniform. The photograph on the right shows the sidewall of the artificial nail. Notice how it comes straight out from the sidewall of the natural nail plate.





Filing the almond nail: the nail projects straight out from the paronychium and curves slightly toward the centre tip. The file is held almost parallel to the artificial nail plate. File the free edge to the desired length, keeping in mind that the file removes the side material and not the tip. Most almond nails come to a point. Remove equal material on both sides, and make sure all nails are uniform.







The photograph on the left shows the correct sidewall of an almond nail. Compare this nail to those on the next page, which are not correct.



The photograph on the left shows that the sidewall of the artificial nail has been incorrectly filed back into the corner of the natural nail plate. Also notice how the underside of the sidewall arches upward instead of extending flat from the finger.



The photograph on the left shows that the sidewall of the artificial nail has been incorrectly filed back into the natural nail plate. An inexperienced technician may try to achieve a slender tip by incorrectly filing the nail in this manner. Remember that the slender shape is created by the c-curve, and **not** filing. The picture below and to the left shows the c-curve **before** the sidewall was filed in. Compare it to the photograph below and to the right, which shows the c-curve **after** the sidewall has been filed in.







The photograph to the left shows a lopsided c-curve. Instead of filing the right side to match the left side, more product should be added to the left side.

The minimum amount of c-curve that is required for a free edge to be structurally sound depends on the shape of the free edge. A square free edge requires the least amount of c-curve to be structurally sound. A squoval free edge requires more c-curve than a square nail, a round free edge requires more c-curve than a squoval; the oval free edge requires more c-curve, and the almond free edge requires the most c-curve.

For example, a square nail has a long free edge; as a result, the c-curve does not need to be dramatic for the free edge to have strength. In contrast, the free edge of the almond nail is very short, and so it requires a more dramatic c-curve to be strong. The photograph below and to the left shows a c-curve for a square nail on a pinkie finger. The photograph below and to the right shows a c-curve for an almond nail on a thumb.





Filing and Shaping the Apex and C-Curve



On the left side of client's finger, with thumb, push skin back, then file around the cuticle perimeter blending in the product to the natural nail along the top of the cuticle and the side.



Continue the filing motion and move the file toward the free edge.



Holding the file loosely, blend the sides in. File back and forth, bringing the file to the middle of the finger in a rounded motion. Change position to an overhand grip, placing the thumb and finger across cuticle as the file is rounded across the cuticle.



The technician's ring finger is used to bend the client's knuckle, and tilt the finger to access the right sidewall. Continue filing



By looking at this photograph on the left, it is easy to see the difference between the areas of the nail that have been filed, and those that have not been filed. The filed areas appear grey, while the unfiled areas appear shiny.



Once the perimeter is blended, change to an underhand grip, look down the barrel and then file towards the technician to thin out the free edge. When filing a square nail, the file is placed perpendicular to the finger and contacts the nail to blend the free edge into the apex. The file does not cut into the apex. It is held at a 45 degree angle.



This artificial nail is ready for buffing. Notice that the centre of the nail did not need to be reduced. This is because the correct amount of product was placed by the technician. If too much product had

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been placed here, it would have required removal.

Free edges that have pronounced c-curves are filed slightly different than the free edge that has a gentle c-curve. The file is held perpendicular to the finger and flat with the nail to maximize contact surface. The file begins at the sidewall of the free edge, and is 90 degrees from the nail plate. As the file is moved toward the apex, it is rolled to the centre of the nail. When the file begins at the apex, it is held flat across the top of the nail plate. As it moves toward the free edge, it is rolled until it reaches the sidewall of

It is important to use a dust brush and not the fingers to remove dust from the nails. Using a finger will re-introduce oils to the nail surface. the free edge where it is 90 degrees from the nail plate.

In a perfect world, the only filing that needs to occur is to taper the apex into the perimeter and the free edge. At this stage, double check all the artificial nails for uniformity, lumps, bumps, and thin spots.

Repeat the filing steps with a medium or fine buffer block. Dust the nails intermittently throughout the process with a dust brush. Give the nails a final dust with the dust brush.

Objective Six Self-Test

1) What is the maximum recommended length of an artificial nail?

2) Draw the five	e salon nail shapes	5:		
Square	Squoval	Round	Oval	Almond
3) Describe how	to file each of the	e five salon nail sł	napes:	
Square:				
Squoval				
Oval				

Almond

4) What is the function of the apex and c-curve?

5) How is a client's cuticle protected during

Objective Six Self-Test Answers

1) The maximum length of an artificial nail is one-third longer than the natural nail bed.



3) Filing the square nail: Hold the file held at 90 degrees perpendicular to the finger. The sidewalls of the nail come straight out from the paronychium, and the free edge is filed straight across.

Filing the squoval nail: File a square nail, then tilt the file to 65 degrees and file the corners into the centre of the free edge.

Filing the round nail: File a square nail, then tilt the file to 65 degrees and file the corners into the centre of the free edge.

Filing the oval nail: File a square nail, then tilt the file to 40 degrees and file the corners into the centre of the free edge.

Filing the almond nail: The file is held parallel to the nail plate, then file below the nail to create the shape.

4) The function of the apex is to create longitudinal strength, and the function of the ccurve is to create lateral strength. 5) The client is protected during shaping by hand position. When filing the left side of the nail, place thumb over the client's skin to act as a bumper to protect against the file. When filing the top of the nail, using an overhand grip, use the thumb and index finger as a bumper to protect against the file. When filing the right side of the nail, tilt the client's finger and use the index finger as a bumper to protect against the file.

Objective Seven

When you have completed this objective, you will be able to: Describe finishing and sealing

Once filing and shaping is complete, there are several options for finishing the artificial nails. The first option is to buff the nails to a high shine. Begin by buffing the nails with a fine grit buffer block, and then re-buff nails with an ultra-fine buffer block. After the buffing is complete, the nails will appear smooth and glossy. If the nails are buffed to a shine, they are porous and can be soaked off.



Another option is to apply polish or gel polish. If this option is chosen, the polish is applied after the filing and shaping is complete. Do not buff the nails to a shine first, as this will prevent the polish from adhering correctly. It is important to note that most get polishes are porous.

Sealing

The last option for finishing acrylic nails is to seal them. Sealing components do not possess any building properties. They are designed to create a high-gloss finish and seal the artificial nail from the elements by rendering them non-porous. The four photographs below show the process of sealing and the finished application of sealant.



Once the sealing component has been chosen, it can be applied with a brush from the bottle (if the component comes in a bottle), and others will be applied with a buildingstyle brush (if the component comes in a jar). Because of the low viscosity, apply the sealing component to one finger, and then cure the finger. While the finger is curing, apply sealing component to a nail on the other hand. When applying the sealing component, tip the finger downward so the component does not run into the cuticle. If the component is applied too thickly, it may run into the cuticle, and it may overheat during curing. If the component is applied too thinly, it will leave bare spots after curing. Observe the product carefully as it leaves the brush. The brush should leave a tiny ridge of product on either side, as the product is wiped on. If too much product is applied, the brush will leave a wave product behind it. This excess product will likely flow to the cuticles. It may be necessary to apply two thin coats to each nail to ensure thorough coverage. Thin coats will generate less heat during curing than one thicker coat.

Sealing gels can also be referred to as: sealant, top gloss, tack-free top gloss, and matte sealant. Sealing gels should be non-porous. A porous sealing gel will discolour and allow moisture and bacteria to penetrate into the artificial nail. A product referred to as a sealant has a lower viscosity, a high shine, and a high percentage of photo-initiators. A product referred to as a top gloss has a higher viscosity with a high shine, and a lower percentage of photo-initiators than sealant. Top gloss is used to cover art work or embellishments such as sparkles or shells. Tack-free top gloss can be either porous or non-porous, has a high percentage of photo-initiators, and was designed to be a step-saving surface on which art can be applied (such as art or chromes). A matte sealant has a matte finish.

Objective Seven Self-Test

1) What are the functions of a sealing component?

2) Which is better and why: one thick coat of sealing component or two thin coats?



Objective Seven Self-Test Answers

- 1) The functions of a sealing component are to create a high-gloss shine and seal the artificial nail from the elements.
- 2) Two thin coats of sealing component is better than one thick coat, because less heat is generated by the thin coats, reducing the chance of causing pain for the client.

Objective Eight

When you have completed this objective, you will be able to: Demonstrate application of powder/liquid systems on one full set of nails

Working Efficiently

Each technician will have slightly different methods of performing this service; regardless of the method chosen, minimize the time needed to perform the service by minimizing the amount of times tools are changed. Make sure that all tools and products are laid out in the order they will be used. Developing a system will ensure that steps are not missed. The following steps will be performed working first on the client's right hand—from pinkie to thumb—and then on the left hand—from pinkie to thumb. Consult EST 1 for the proper set up and preparation for the service.

Work Flow for Laboratory Exercise			
Steps			
1	Push back all ten cuticles.		
2	2 Clean all cuticles, manually or with an electric file.		
3	Shorten the free edge.		
4	Buff all ten nails.		
5	5 Clean all nails with a wipe that is saturated with nail cleaner.		
6	6 Check for shine.		
	Forms	Tips	
7	If primer is required, apply primer	Customize and adhere tips	
7 8	If primer is required, apply primer Place forms	Customize and adhere tips Re-buff the nail plates	
7 8 9	If primer is required, apply primer Place forms Build out the free edge (zone 1)	Customize and adhere tipsRe-buff the nail platesClean nail plate with cleaning agent	
7 8 9 10	If primer is required, apply primer Place forms Build out the free edge (zone 1)	Customize and adhere tipsRe-buff the nail platesClean nail plate with cleaning agentInspect	
7 8 9 10 11	If primer is required, apply primer Place forms Build out the free edge (zone 1)	Customize and adhere tipsRe-buff the nail platesClean nail plate with cleaning agentInspectIf primer is required, apply primer	
7 8 9 10 11 12	If primer is required, apply primer Place forms Build out the free edge (zone 1)	Customize and adhere tipsRe-buff the nail platesClean nail plate with cleaning agentInspectIf primer is required, apply primerPlace form	
7 8 9 10 11 12 13	If primer is required, apply primer Place forms Build out the free edge (zone 1) Build c-curve and apex (zones 2 and 3)	Customize and adhere tipsRe-buff the nail platesClean nail plate with cleaning agentInspectIf primer is required, apply primerPlace form	
7 8 9 10 11 12 13 14	If primer is required, apply primer Place forms Build out the free edge (zone 1) Build c-curve and apex (zones 2 and 3) Pinch if necessary	Customize and adhere tips Re-buff the nail plates Clean nail plate with cleaning agent Inspect If primer is required, apply primer Place form	

16	File to desired shape
17	Dust and clean the nails
18	Finishing options for nails: buff to a shine, polish, gel polish, and/or sealant

Laboratory Exercise

Purpose: To apply a complete gel system on one full set of nails.

Materials

Desk	Dappen Dish	Overhead Lamp
Chairs	Electric File	Cuticle Pusher
Electric File Bits: Diamond cone, ceramic		Sable brushes
Dust Vent or Towel	Sanitizable Dust Brushes	Paper towels
Assorted Tips	Lint-free Wipes	Files: 100 and 180 grit
Forms	Nail Clipper	Nail Cleaner
Polish Remover	Hand Sanitizer	Primers / Dehydrators
Monomer and polymer	Pinching tool	Sealing Component
Colour (optional)	Nail Oil	Hand Cream
Tip Cutters	Medium Viscosity Cyanoacrylate	
Buffer Blocks: medium and	fine	Stork scissors

Procedure:

Please see the procedure / work flow that is outlined in the previous pages.

Instructor Signature and notes:

Module Summary Self-Test

- 1) What two components form acrylic?
- 2) What is the most common mixing ratio for nail technicians?
- 3) What conditions affect air drying systems?
- 4) How long can a technician work on a nail when using a light-curing system, and why?
- 5) What factors have caused the rise in the popularity of acrylic nails?
- 6) What is the main objective of nail preparation?
- 7) How is a brush cleaned when it has become contaminated by polymerized material?

- 8) Why is it imperative that the free edge extend straight out from the sidewall of the natural nail?
- 9) When a technician accidentally creates an asymmetrical c-curve, how is it corrected?
- 10) What three options are available for finishing an acrylic nail, and which ones are porous and non-porous?



Module Summary Self-Test Answers

- 1) Acrylic is formed by mixing a monomer liquid and a polymer powder.
- 2) The most common mixing ratio is medium.
- 3) The following conditions affect air drying systems: room temperature, finger temperature, mixing ratio, and humidity.
- 4) A technician can work on a nail until they are satisfied, when using a light-curing system. The polymer will not set until cured in the light.
- 5) The factors have caused the rise in the popularity of acrylic nails include: heavier particles are created when filing, colour choices have expanded, custom colour blending is available, and they function better in humid environment.
- 6) The main objective of nail preparation is to remove all shine from the natural nail plate and create a fully etched surface to which the artificial nail will adhere.
- 7) When a brush has become contaminated by polymerized material, it is best to soak the bristles in monomer for at least 4 hours. After the polymerized material is dissolved, remove the brush from the monomer and dry them on a paper towel. Dry them on a paper towel by pulling them gently while rolling them. They can be stored hanging with the bristles down or by laying them flat.
- 8) It imperative that the free edge extend straight out from the sidewall of the natural nail to prevent filing into the sidewall of the natural nail?
- 9) When a technician accidentally creates an asymmetrical c-curve, it is corrected by adding more product to the side that is shorter.

10) The three options that are available for finishing an acrylic nail are buff to a shine (porous), polish or gel polish (porous), and a sealing component (non-porous).

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