

# VTCT Level 2 Award in LED Gel Polish Techniques

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Operational start date:	<b>1 October 2014</b>
Credit value:	<b>1</b>
Total Qualification Time (TQT):	<b>10</b>
Guided learning hours (GLH):	<b>10</b>
Qualification number:	<b>601/4628/X</b>

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## Statement of unit achievement

By signing this statement of unit achievement you are confirming that all learning outcomes, assessment criteria and range statements (if/where applicable) have been achieved under specified conditions, and that the evidence gathered is authentic.

This statement of unit achievement table must be completed prior to claiming certification.

Unit code	Date achieved	Learner signature	Assessor initials	IQA signature (if sampled)
Mandatory units				
UBT19				

# The qualification

## Introduction

The VTCT Level 2 Award in LED Gel Polish Techniques is a single unit award qualification about applying, maintaining and removing LED gel polish products to the nails. This qualification aims to enable you to enhance the ranges of services and techniques offered to nail services clients.

This qualification also covers the skills and knowledge required to prepare for the service and maintain effective health, safety and hygiene working practices throughout the treatment.

## National Occupational Standards (NOS)

Units in this qualification have been mapped to the relevant NOS (where applicable). This qualification is regulated on the Regulated Qualifications Framework.

## Prerequisites

There are no formal prerequisite qualifications that you must have prior to undertaking this qualification.

Your centre will have ensured that you have the required knowledge, understanding and skills to enrol and successfully achieve this qualification.

## Progression

This qualification forms part of a larger suite of Level 2 nail services qualifications. There are limited specific job roles or opportunities that can arise from taking this qualification award on it's own, however opportunities for employment as a junior nail technician are possible through this award when taken alongside other Level 2 nail services or nail technology qualifications such as:

- VTCT Level 2 NVQ Diploma in Nail Services
- VTCT Level 2 Certificate in Nail Technology

You can also progress directly to Level 3 qualifications such as:

- VTCT Level 3 Diploma in Nail Technology
- VTCT Level 3 NVQ Diploma in Nail Services

# Qualification structure

## Total credits required - 1

### Mandatory units - 1 credit

VTCT unit code	Ofqual unit reference	Unit title	Credit value	GLH	Level
UBT19	K/506/6853	Apply LED gel polish	1	10	2

# Guidance on assessment

This book contains the mandatory units that make up this qualification. Optional units will be provided in additional booklets (if applicable). Where indicated, VTCT will provide assessment materials. Assessments may be internal or external. The method of assessment is indicated in each unit.

## Internal assessment

*(any requirements will be shown in the unit)*

Assessment is set, marked and internally quality assured by the centre to clearly demonstrate achievement of the learning outcomes. Assessment is sampled by VTCT external quality assurers.

## External assessment

*(any requirements will be shown in the unit)*

Externally assessed question papers completed electronically will be set and marked by VTCT.

Externally assessed hard-copy question papers will be set by VTCT, marked by centre staff and sampled by VTCT external quality assurers.

## Assessment explained

VTCT qualifications are assessed and quality assured by centre staff. Work will be set to improve your practical skills, knowledge and understanding. For practical elements, you will be observed by your assessor. All your work must be collected in a portfolio of evidence and cross-referenced to requirements listed in this record of assessment book.

Your centre will have an internal quality assurer whose role is to check that your assessment and evidence is valid and reliable and meets VTCT and regulatory requirements.

An external quality assurer, appointed by VTCT, will visit your centre to sample and quality-check assessments, the internal quality assurance process and the evidence gathered. You may be asked to attend on a different day from usual if requested by the external quality assurer.

This record of assessment book is your property and must be in your possession when you are being assessed or quality assured. It must be kept safe. In some cases your centre will be required to keep it in a secure place. You and your course assessor will together complete this book to show achievement of all learning outcomes, assessment criteria and ranges.



## Creating a portfolio of evidence

As part of this qualification you are required to produce a portfolio of evidence. A portfolio will confirm the knowledge, understanding and skills that you have learnt. It may be in electronic or paper format.

Your assessor will provide guidance on how to prepare the portfolio of evidence and how to show practical achievement, and understanding of the knowledge required to successfully complete this qualification. It is this booklet along with the portfolio of evidence that will serve as the prime source of evidence for this qualification.

Evidence in the portfolio may take the following forms:

- Observed work
- Witness statements
- Audio-visual media
- Evidence of prior learning or attainment
- Written questions
- Oral questions
- Assignments
- Case studies

All evidence should be documented in the portfolio and cross referenced to unit outcomes. Constructing the portfolio of evidence should not be left to the end of the course.

# Unit assessment methods

This section provides an overview of the assessment methods that make up each unit in this qualification. Detailed information on assessment is provided in each unit.

Mandatory units				
		External	Internal	
VTCT unit code	Unit title	Question paper(s)	Observation(s)	Portfolio of Evidence
UBT19	Apply LED gel polish	0	✓	✓

# Unit glossary

	Description
<b>VTCT product code</b>	All units are allocated a unique VTCT product code for identification purposes. This code should be quoted in all queries and correspondence to VTCT.
<b>Unit title</b>	The title clearly indicates the focus of the unit.
<b>National Occupational Standards (NOS)</b>	NOS describe the skills, knowledge and understanding needed to undertake a particular task or job to a nationally recognised level of competence.
<b>Level</b>	Level is an indication of the demand of the learning experience; the depth and/or complexity of achievement and independence in achieving the learning outcomes.
<b>Credit value</b>	This is the number of credits awarded upon successful achievement of all unit outcomes. Credit is a numerical value that represents a means of recognising, measuring, valuing and comparing achievement.
<b>Guided learning hours (GLH)</b>	The activity of a learner in being taught or instructed by - or otherwise participating in education or training under the immediate guidance or supervision of - a lecturer, supervisor, tutor or other appropriate provider of education or training.
<b>Total qualification time (TQT)</b>	The number of hours an awarding organisation has assigned to a qualification for Guided Learning and an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study, or any other form of participation in education or training. This includes assessment, which takes place as directed - but, unlike Guided Learning, not under the immediate guidance or supervision of - a lecturer, supervisor, tutor or other appropriate provider of education or training.
<b>Observations</b>	This indicates the minimum number of competent observations, per outcome, required to achieve the unit.
<b>Learning outcomes</b>	The learning outcomes are the most important component of the unit; they set out what is expected in terms of knowing, understanding and practical ability as a result of the learning process. Learning outcomes are the results of learning.
<b>Evidence requirements</b>	This section provides guidelines on how evidence must be gathered.
<b>Observation outcome</b>	An observation outcome details the tasks that must be practically demonstrated to achieve the unit.
<b>Knowledge outcome</b>	A knowledge outcome details the theoretical requirements of a unit that must be evidenced through oral questioning, a mandatory written question paper, a portfolio of evidence or other forms of evidence.
<b>Assessment criteria</b>	Assessment criteria set out what is required, in terms of achievement, to meet a learning outcome. The assessment criteria and learning outcomes are the components that inform the learning and assessment that should take place. Assessment criteria define the standard expected to meet learning outcomes.
<b>Range</b>	The range indicates what must be covered. Ranges must be practically demonstrated in parallel with the unit's observation outcomes.





# UBT19

## Apply LED gel polish

The aim of this unit is to develop your knowledge, understanding and skills in applying, maintaining and removing LED Gel polish.

You will learn how to recognise contra-indications, prepare for service and produce a treatment plan whilst maintaining effective health, safety and hygiene working practice for nail technicians/therapists. You will also learn about the anatomy and physiology of the skin and nails.

Level

**2**

Credit value

**1**

GLH

**10**

Observations

**2**

External paper(s)

**0**



# Apply LED gel polish

## Learning outcomes

On completion of this unit you will:

1. Be able to provide LED gel polish treatments
2. Understand LED gel polish treatments

## Evidence requirements

1. *Environment*  
Evidence for this unit may be gathered within the workplace or realistic working environment (RWE).
2. *Simulation*  
Simulation is not allowed in this unit.
3. *Observation outcomes*  
Competent performance of Observation outcomes must be demonstrated on **at least two occasions**. Assessor observations, witness testimonies and products of work are likely to be the most appropriate sources of performance evidence. Professional discussion may be used as supplementary evidence for those criteria that do not naturally occur.

Assessed observations should not be carried out on the same day for the same learning outcome. There should be sufficient time between assessments for reflection and personal development.

You need to meet the same standard on a regular and consistent basis. Separating the assessments by a period of at least two weeks is recommended as competence must be demonstrated on a consistent and regular basis.

4. *Range*  
All ranges must be practically demonstrated or other forms of evidence produced to show they have been covered.
5. *Knowledge outcomes*  
There must be evidence that you possess all the knowledge and understanding listed in the Knowledge section of this unit. In most cases this can be done by professional discussion and/or oral questioning. Other methods, such as projects, assignments and/or reflective accounts may also be used.
6. *Tutor/Assessor guidance*  
You will be guided by your tutor/assessor on how to achieve learning outcomes and cover ranges in this unit. All outcomes and ranges must be achieved.
7. *External paper*  
There is no external paper requirement for this unit

# Achieving observations and range

## Achieving observation outcomes

Your assessor will observe your performance of practical tasks. The minimum number of competent observations required is indicated in the Evidence requirements section of this unit.

Criteria may not always naturally occur during a practical observation. In such instances you will be asked questions to demonstrate your competence in this area. Your assessor will document the criteria that have been achieved through professional discussion and/or oral questioning. This evidence will be recorded by your assessor in written form or by other appropriate means.

Your assessor will sign off a learning outcome when all criteria have been competently achieved.

## Achieving range

The range section indicates what must be covered. Ranges should be practically demonstrated as part of an observation. Where this is not possible other forms of evidence may be produced. All ranges must be covered.

Your assessor will document the portfolio reference once a range has been competently achieved.



# Observations

## Learning outcome 1

### Be able to provide LED gel polish treatments

You can:

- a. Prepare yourself, client and work area for LED gel polish services
- b. Communicate and behave in a professional manner
- c. Use suitable consultation techniques to identify the treatment objectives
- d. Assess client treatment suitability with a nail and skin analysis
- e. Follow health and safety working practices
- f. Position yourself and the client correctly and appropriately throughout the treatment
- g. Select products, tools, equipment and techniques to suit client's service needs, nail and skin conditions
- h. Prepare the nails for LED gel polish application
- i. Apply LED gel polish according to the manufacturer's instructions
- j. Provide suitable aftercare and maintenance advice to the client
- k. Record the results of the treatment

*\*May be assessed through supplementary evidence.*

Observation	1	2	Optional
Date achieved			
Criteria questioned orally			
Portfolio reference			
Assessor initials			
Learner signature			



# Range

You must practically demonstrate that you have:

<b>Used <b>all</b> consultation techniques</b>	<b>Portfolio reference</b>
Questioning	
Visual examination	
Physical examination	
Reference to client records	
<b>Dealt with a <b>minimum of 1</b> necessary action</b>	<b>Portfolio reference</b>
Encouraging the client to seek medical advice	
Explaining why the service cannot be carried out	
Modifying the service	
<b>Applied to <b>all</b> stated areas</b>	<b>Portfolio reference</b>
Finger nails	
Toe nails	
<b>Applied <b>all</b> types of LED gel polish finishes</b>	<b>Portfolio reference</b>
Dark colour	
Light colour	
French	
Base coat	
Top coat	
<b>Carried out <b>all</b> types of maintenance</b>	<b>Portfolio reference</b>
Removed all gel leaving nails neat and oiled	



You must practically demonstrate that you have:

Used <b>all</b> removal techniques		Portfolio reference
Manual		
Chemical		
Provided <b>all</b> types of home and aftercare advice		Portfolio reference
Suitable aftercare products		
Avoidance of activities which may cause contra-actions		
Recommended time intervals in between nail services		
Home care routines		

# Developing knowledge

## Achieving knowledge outcomes

You will be guided by your tutor and assessor on the evidence that needs to be produced. Your knowledge and understanding will be assessed using the assessment methods listed below\*:

- Projects
- Observed work
- Witness statements
- Audio-visual media
- Evidence of prior learning or attainment
- Written questions
- Oral questions
- Assignments
- Case studies
- Professional discussion

Where applicable your assessor will integrate knowledge outcomes into practical observations through professional discussion and/or oral questioning.

When a criterion has been orally questioned and achieved, your assessor will record this evidence in written form or by other appropriate means. There is no need for you to produce additional evidence as this criterion has already been achieved.

Some knowledge and understanding outcomes may require you to show that you know and understand how to do something. If you have practical evidence from your own work that meets knowledge criteria, then there is no requirement for you to be questioned again on the same topic.

*\*This is not an exhaustive list.*



# Knowledge



## Learning outcome 2

### Understand LED gel polish treatments

You can:	Portfolio reference
a. Describe the health and safety requirements in a salon for nail services	
b. Explain the importance of a nail and skin analysis	
c. Describe the contra-indications which prevent or restrict LED gel polish treatments	
d. Explain the reasons for removing the surface shine and dust from the nail plate	
e. Explain the differences between UV light and LED gel polish	
f. Describe the chemical processes that occur during treatment	
g. Explain the consequences of not following manufacturer's instructions when applying, curing and removing the inhibition layer when providing LED gel polish	
h. Describe the importance of completing the treatment to the client's satisfaction and within the recommended treatment times	

# Unit content



This section provides guidance on the recommended knowledge and skills required to enable you to achieve each of the learning outcomes in this unit. Your tutor/assessor will ensure you have the opportunity to cover all of the unit content.

## Learning outcome 1: Be able to provide LED gel polish treatments

**Professional appearance:** Clean professional uniform, no jewellery, no piercings, hair neatly tied back, fringe secured, closed in footwear, make-up (light day make-up), personal hygiene and cleanliness (shower/bath), cover cuts and abrasions, deodorant or antiperspirant, oral hygiene, clean teeth, fresh breath, nails (good condition and maintained).

**Work area:** Clean and hygienic, height adjustable chair, correct posture, correct couch height, lighting, ventilation, noise, music, temperature, ambience, no trailing wires, no obstructions, tools and equipment in a safe working position for technician.

**Client preparation:** Protect client clothing, client comfort, privacy, modesty, client positioned correctly.

### Products, tools and equipment:

**Product** – nail cleanser, dehydrator, LED coloured gels, base coat, top coat, product remover (refer to manufacturer's instructions), nail polish remover, skin sanitiser, hand cream, lotion, cuticle oil.

**Tools** – cuticle pusher, cuticle nippers, nail clippers, nail scissors, files and buffers, stiff bristled nail brush, product application brushes.

**Equipment** – nail desk/station and chairs, ventilation system, desk lamp, LED lamp, towels, disposable paper roll, tissue, nail wipes.

### Communication:

**Verbal** – speaking manner and tone,

professional, supportive, respectful, sensitive to client, open questioning related to treatment.

**Non-Verbal** – eye contact, open body language, listening.

**Professional ethical conduct:** Polite, cheerful and friendly manner, friendly facial expressions, positive attitude, eye contact, open body language, client relations, confidentiality, respect for colleagues and competitors, avoid gossip, pride in work, punctuality, employer and client loyalty.

**Consultation techniques:** Client requirements, client satisfaction, client expectations and aftercare, signatures, visual, manual, cleanse treatment area to identify condition of skin and nails, remove nail enamel, question, listen, client card reference.

**Skin conditions** – dry, dehydrated, normal, sensitive, hypersensitive.

**Nail conditions** – bitten, damaged, oily, dry, extensions (from another salon or technician).

**Cuticle conditions** – dry, normal, overgrown, split, hangnail.

**Nail shape** – round, square, pointed, fan, oval, trapezoid, narrow, ski-jump, hook.

### Client treatment needs:

**Nail length** – reduce excess length.

**Nail shape** – client preference, suits client's natural shape, misshapen.

**Condition** – dry, dehydrated, normal,



## Learning outcome 1: Provide LED gel polish treatments (continued)

sensitivity, split, overgrown cuticles, uneven, smooth, damage to overlay, dull, scratched, unbalanced, and brittle.

**Desired appearance of nail:** Client preference, natural, French, light, dark.

**Technician posture and deportment:**

Correct posture when sitting, correct posture when lifting, correct posture when carrying, working methods to avoid Repetitive Strain Injury (RSI), hand exercises, standing posture, even weight distribution, client comfort, maintain modesty, client correctly positioned to get maximum benefit from treatment, ensure technician positioning delivers appropriate techniques, appropriate space between client and technician, prevent injury, optimum results, allow for visual checks.

**Application of LED gel nails:**

**Use of files** – file applied at 45° to 90° angle to nail, filing strokes in one direction only, bevelling technique to be used where appropriate, nail filed to fit the shape of the stop point, graduate file to remove scratches.

**Use of buffer** – buff in the correct sequence to achieve high shine.

**Cuticle work** – cuticle pusher to push back the cuticle with small circular movements, cuticle nippers to remove any remaining cuticle with small pinching movements, excess product removed, wet manicure a few days prior to treat overgrown cuticles. Do not soak hands prior to LED Gel polish application.

**Natural nail preparation** – sanitise hands and nails (technician and client), surface shine removed with a high grit file, shine removed following direction of nail growth, remove all surface dust, application of

cleanser/dehydrator to nail plate, attention paid to lateral folds and cuticle area, natural nail shaped. Do not touch the surface of nail with fingers due to transfer of natural oils.

**Application of overlay** – cleaning of brush, client finger, nail and nail product positioned correctly, primer (if required) (always read manufacturers' instructions) applied sparingly to natural nail. Product applied thinly starting with base coat, gel polish colour (2 to 3 layers), top coat. Use downward strokes ensuring cuticle or soft tissue is avoided with brush and product, products used in the correct sequence according to manufacturer's instructions; correct cure times are followed in relation to manufacturers' instructions. Product is applied thinly to avoid exothermic reaction. A margin is left at the cuticle sidewalls, crisp, curved smile line (French), even distribution of product, correct application techniques to suit nail shape and condition, files kept parallel to nail, no air bubbles, surrounding skin undamaged, nail structurally balanced and shaped (consistent shape and length), surface smooth and even, free from demarcations, shape and length complements the client's hands or feet.

**Nail enhancement structure** – smooth transition from product to natural nail, no ridges, no glitches at sidewalls.

**Finish filing** – 100/180 grit to shape sidewalls and free edge, 90° angle for square shape, 45° angle for rounded, 180 grit file to refine nail surface, long strokes, flat file to the nail, even pressure, apex filed last, bevel free edge, work at eye level, graduate grit files to remove demarcations prior to top coat (only if required), surface



## Learning outcome 1: Provide LED gel polish treatments (continued)

smooth and even.

**Maintenance/infills** – every 2-3 weeks, nail structure assessed and contra-actions identified, prepare re-growth area, shorten nail length, re-define side walls, abrasives are flat to the nail, friction/heat build-up is avoided, lifting product correctly removed (filed), on good product adhered to the natural nail, never clip lifted product, no fill lines, contra-actions rectified using correction methods without damaging the nail structure, natural nail, removal if required, nail structure restored to original condition according to client's needs, product applied in re-growth area, filled following manufacturer's instructions, thin cuticle line, margin between product and surrounding skin, file and shine.

**Re-balance** – nail structure assessed and contra-actions identified, prepare re-growth area, shorten nail length, redefine side walls, thin free edge filed at 45° angle, abrasives are flat to the nail, friction/heat build-up is avoided, correct removal of lifted product, product applied following manufacturer's instructions, smile line repositioned, re-growth area filled, thin cuticle line, margin between product and surrounding skin, finish, filed, contra-actions rectified using correction methods without damaging the nail structure, natural nail, removal if required.

**Removal** – Remove surface shine (top coat) digits soaked in appropriate product remover following manufacturer's instructions, bowl and foil methods, length removed, polish removed.

### Removal:

**Bowl** – solvent 2-3cms deep in ceramic dish, fingers fully submerged, towel placed

over hands, heat applied to accelerate process, soaked for 20 minutes correct techniques to remove without damaging natural nail (orange stick), soft file, perform cuticle work, file and rehydrate skin and nails.

**Foil** – cotton wool soaked in solvent, placed across nails, wrap in foil, soaked for 20 minutes, correct techniques to remove product without damaging the natural nail (orange stick), soft file, perform cuticle work, file and rehydrate skin and nails.

**Aftercare and home care advice** – aftercare and recommendations provided at consultation stage, leaflet provided to client.

**Home care products** – cuticle oils, hand creams, non-acetone remover.

**Advice** – how to treat nails and skin, safe professional removal, avoid picking or tearing, maintenance appointments, checking nail for abnormalities between appointments.

**Record keeping:** Accurate appointment systems, stationery, loyalty, rewards, acknowledgement of occasions, consultation record keeping, signatures, refer to existing records, information clear and accurate, logical order, name, address, contact numbers, age range, reason for treatment, occupation, sport/hobbies, medical history, allergies/hypersensitivity, contact lenses, contra-actions, contra-indications, skin sensitivity tests, adaptations and modifications, recommendations, requirement, treatment plan, update record at the end of the treatment, update at each visit, records maintained electronically, paper records.



## Learning outcome 2: Understand LED gel polish treatments

**Regulations:** Control of substances hazardous to health, management of health and safety at work regulations, manual handling, personal protective equipment, reporting of injuries, diseases and dangerous occurrences, workplace (health and welfare) regulations.

**Employer responsibility:** Current and valid liability insurance, display health and safety rules covering staff, employees and clients, fire evacuation, provide regular training, accurate record keeping, monitoring.

**Hazards:** Something with potential to cause harm, requiring immediate legislation, level of responsibility, report, nominated personnel, duty to recognise/deal with hazards.

**Equipment:** Only used for intended purpose, safe usage, handling, storage, cleaning, lifting, visual checks, worn, faulty, repairs, maintenance, portable appliance testing, correct disposal of contaminated waste, records.

**Chemicals:** Storage, handling, safe usage, disposal, records.

**Risk:** Likelihood of a hazard happening, risk assessment, determine the level of risk, preventative measures, reduce a potentially harmful situation, judgement of salon hazards who, what, level of risk, interpret results, conclusions, record findings, regular reviews.

**Reasons for risk assessment:** Staff, visitor, client health and safety, safe environment, minimising hazards and risks, requirement of legislation.

**Over exposure to chemicals:**

**Prevention** – routes of entry to the body,

preventing inhalation, ingestion and absorption, ventilation units, professionally fitted extraction unit, local exhaust, charcoal filters, fan, good housekeeping techniques, salon hygiene, correct application techniques, manufacturer's instructions, personal protection equipment, correct ventilation, decanting products, eye protection (contact lenses, safety glasses), LED lamp maintenance (clean reflectors, change bulbs and reflectors), coat of oil on nails to reduce dust.

**Symptoms** – headaches, sickness, dizziness, fainting, fatigue, effects on respiratory system, skin irritation.

**Hygiene:**

**General** – sterilise tools, disinfect work surfaces, cover cuts and abrasions, sanitise therapist's hands before and after treatments, sanitise with sprays and gels, clean towels between clients, dirty towels in covered bin, disposable towels, dispense products with a spatula, pump or spray, disposables used wherever possible, no smoking, personal hygiene, replace loose lids, uncapped bottles and pots.

**Sterilisation** – autoclave, glass bead, chemical, UV cabinet for storage only.

**Disinfection** – heat or chemical methods, bactericides, fungicides, viricides.

**Disposal of waste:** Single use items, metal pedal bin with a liner, spillages and unused chemicals, contaminated waste, hazardous waste, environmental protection.

**Nail and skin analysis:** Accurate recommendations for treatment or referral to GP, gather information, avoid cross-infection and making a nail or skin condition worse, cleanse and sanitise hands, refer



## Learning outcome 2: Understand LED gel polish treatments (continued)

to previous records, remove nail enamel, visual check for contra-indications.

**Contra-indications** – a condition that prevents or changes the treatment being offered.

**Examples of contra-indications that may prevent treatment:** Fungal infections (e.g. onychomycosis, tinea pedis), bacterial infections (e.g. pseudomonas (green between nail plate and overlay), paronychia, onychia), viral infection (e.g. verruca vulgaris, warts), parasitic infestation (e.g. scabies), allergic reactions, over exposure, red, itchy inflamed, sore, tissue, white patchy nails, severe eczema, psoriasis or dermatitis, open wounds/cuts/abrasions local to treatment area, nail plate separation, onycholysis, bruising, onychocryptosis, client to seek medical advice.

**Examples of contra-indications that may restrict treatment:** Minor eczema, psoriasis or dermatitis (barrier cream, good hygiene), severely bitten or damaged nails (keep nails short, weekly maintenance, water manicure few days prior to treatment), dry overgrown cuticles (water manicure few days prior to treatment), broken bones (work around), cuts and abrasions (cover and protect, treatment modified by avoiding affected area).

**Reasons for removing the surface shine and dust from the nail plate:** To prepare the nail for application of gel, helps with adhesion of the gel and the life of the gel. Always follow the manufacturer's instructions.

**Curing time** – cure times for LED lights vary (always check manufacturers' instructions). Not all lights produce the

same wavelength of UV light. Typical curing time for UV lamps is 2 minutes. Typical curing time for LED lamps is 10 to 30 seconds.

**Advantages of LED gel polish** – eliminates long drying times. Tough and resistant to scratches, flexible, lasts around 2 weeks, easily removed with solvent (acetone or product recommended by manufacturer) and orangewood stick, no harsh soaking or scraping needed to remove.

**Cost** – UV lamps are more affordable. LED lamps are generally more expensive.

**Efficiency** – UV lamps use more energy (less efficient). LED lamps use less energy and are more eco-friendly.

**Bulb Life** – UV lamps need to be changed periodically depending on amount of clients per day. The general life span is 3 to 6 months depending on usage. LED lamp – Bulbs generally last the life of the lamp and will not need to be replaced.

**Types of gel polish** – UV lamp cures all types of gel. LED lamp cures gel/gel polish that is formulated for LED (Light Emitting Diode/Device).

**LED and UV Lamps** – soak off gel manufacturer's retail lamps compatible to use with their own products. Always check with product companies which are suited to each product. It is recommended that a UV lamp is also available for use if required.

**UV Lamp versus LED lamp** – many differences, the main difference is in the photo initiator. UV stands for ultra violet. UV gel lamps use compact fluorescent bulbs. LED lamps cure faster. LED stands for light emitting diode/device.



## Learning outcome 2: Understand LED gel polish treatments (continued)

**LED gel** – correct cure times are followed (LED gel), thin gel application, surface residue is removed at the correct stage in accordance with manufacturer's instructions (UV gel), product applied to avoid an exothermic reaction.

### Chemical processes:

**UV gel** – curing, polymerisation, gel when exposed to LED light will harden.

**Catalyst** – speeds up or slows down reaction.

**Vapours and odours** – molecules from chemicals in air, not always able to detect them by smell. Always ensure good ventilation when using gel products.

**Initiator** – starts the chemical reaction, avoid an exothermic reaction, dealing with exothermic reaction if it occurs (UV and LED lamps initiate polymerisation).

**Photo-initiators (used to cure gel products)** – because of the different band of wavelengths, the same chemistry that photo-cures in a UV lamp may not work with LED lamps. Different photo-initiators may be needed in a gel to cure in a UV lamp versus an LED lamp.

**Viscosity** – substances with a low viscosity would be thin and runny. Substances with a high viscosity would be thick. Viscosity can be affected by a number of factors, most notably temperature.

**Key ingredients/useful terminology** – oligomers, monomers, photo initiators and diluents, among others, all making up the majority of gel polish. This is then called a Poly-Oligomer. Different brands have different ingredients (some hybrid polish), Trimethylhexyl Dicarbomate.

**Poly-Oligomer** – thin viscosity, can be

applied as easily as nail enamel/polish.

**Shrinkage** – polymerisation of any gel product can cause shrinkage. Thicker layers will shrink more than thin translucent layers. May cause lifting and tightness on nail plate, leading to cracking and heat sensation on nail plate. Trauma to nail bed, can lead to infection. Better to apply 2 to 3 thin layers of gel polish to avoid contractions.

**Oligomers** – are short chains of monomers. They are a key ingredient in UV gels, giving it its basic properties (shininess, rigidity) after curing.

**Polymerisation** – chemical reaction creating polymer chains from monomers or oligomers.

**Polymer** – (many units) long chains of chemical bonds of monomers or units.

**Curing** – when photo-initiator is exposed it gives off a free radical. This makes gel unstable as it reacts with double bonds. As they break they combine to create the polymer.

**Capping** – sealing the free edge with gel to prevent lifting/peeling of LED Gel polish.

**Inhibition layer** – will be left on surface (known as tacky layer). Un-cured gel. Oxygen inhibited top layer from curing. Bottom layers of gel not exposed to oxygen at surface. Remove with cleanse end of treatment (follow manufactures instructions). Don't touch as risk of overexposure to product. Recommend using lint free wipe to remove as well as manufacturer's designated cleansing product.

**Uncured product** – can cause over exposure to product, resulting in adverse



## Learning outcome 2: Understand LED gel polish treatments (continued)

skin and nail reactions. Gel polish will not be durable.

**Over curing** – leads to discolouration, shrinkage, lifting, excessive bubbles.

**Surface cleanse** – always use manufacturer's designated product, most effective materials are isopropyl alcohol, methyl ketone, acetone, ethyl acetate, n-propyl acetate or a blend of these solvents.

### Contra-actions/consequences of not following manufacturer's instructions:

**Allergic reaction** – over exposure, poor application, cure time, hygiene, remove product, cold compress, record reaction, medical referral, avoid LED gels, UV gels and acrylics.

**Exothermic reaction** – warm sensation on nail plate ("Exo" means to give off and "Thermic" means heat), this is the chemical reaction occurring too quickly. Incompatibility between the gel and light can cause this. To avoid exothermic reactions apply thin transparent layers of gel. Thick layers will not cure properly.

**Premature loss** – preparation, incorrect curing time, mixing different manufacturer's products. Re-apply.

**Lifting** – preparation, medication, contamination, improper application, infrequent maintenance, nipping, product too thick/thin, natural nail wet, free edge not capped with gel product, failure to "cap" the free edge of the nail with gel polish. Remove and re-apply.

**Breaking and splitting of LED Gel polish** – air bubbles in product, filling natural nail, heavy handed filing, brittle product, poor preparation, infrequent maintenance, home

care, trauma, infection, chemical irritation. Remove and re-apply.

**Discolouration of product** – contamination, formulation of product, staining, high wattage of UV lamp. Remove and re-apply.

**Bacterial infection** – preparation, infrequent maintenance, cracking of natural nail/enhancement, picking, biting, incorrect removal, nipping, lifted product, free edge separation, contaminated tools. Remove product, medical referral.

**Breaking and splitting of natural nail** – over buffing natural nail, incorrect filing technique incorrect removal, and infrequent maintenance. Remove and re-apply, give further after care advice.

**Fungal infection** – trauma, improper LED Gel polish application, contamination, moist conditions. Remove product, medical referral.

**Discolouration of natural nail** – base coat, formaldehyde, improper preparation, lifting/cracking of overlay, over use of primer, bacterial infection, and contaminated tools. Remove product, always ensure base coat is used.

**Importance of completing the treatment to client's satisfaction and within recommended timings:** For return business, recommendations, to make a profit and to keep other clients happy, late appointments cause disruption to the business and can result in loss of business.