



# Nimue-SRC™ Education

For skin treatment professionals dedicated to advanced skincare.



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section **1**

**Introduction to the Nimue-SRC™  
Treatments**



# Introduction to the Nimue-SRC™ Treatments

The cell renewal of the skin slows down from age thirty onwards. Added stress, pollution and sun exposure accelerates skin ageing, hence treatments to renew and improve the appearance and quality of the skin are very important.

It is important to be aware that even in the very best hands, people's skin responses are infinitely variable.

The Nimue-SRC™ stands for Skin Resurfacing Complex. The Nimue-SRC™ Treatments offers progressive and superficial resurfacing of the skin, stimulating epidermal growth through the removal of damaged layers of the stratum corneum.

It is available for three skin classifications: Environmentally Damaged, Hyperpigmented and Problematic Skin.

The results of each of the three Skin Resurfacing Complexes is specific to the needs and concerns of the clients within the respective three skin classifications.

Nimue-SRC™ is used in conjunction with the Nimue Neutraliser Plus which reduces down time, inflammation, increases skin hydration and offers faster barrier repair. It ensures the treatment is more pleasant by having less sensation during the neutralisation process.

## What is Skin Resurfacing?

The term *skin resurfacing* consists of a variety of techniques to change the surface texture and appearance of the skin. The most popular skin resurfacing techniques are chemical peels, dermabrasion and laser resurfacing, however, this may involve the removal of parts of the living layer of the epidermis, also known as partial thickness wounding.

With the Nimue-SRC™ treatments, there is no removal of the living layers of the epidermis and only the upper layers of the stratum corneum is removed ensuring that skin health remains our priority.



# Introduction to the Nimue-SRC™ Treatments

## Benefits of Nimue-SRC™

- Reduction in appearance of fine lines and wrinkles on the face, around the mouth or eye area
- Rough skin texture
- Enlarged pores
- Acne - various levels
- Hyperpigmentation - various levels
- Uneven skin tone

## Key Focus Points of the Three Classifications of Nimue-SRC™

Each of the three Nimue-SRC™ has been scientifically formulated with a specific synergy of acids to provide the skin with the desired results.



Formulated to reduce wrinkles, soften and refine skin texture and provide immediate skin radiance.



Formulated to promote skin brightening, while offering renewal and refinement of the skin



Formulated to dissolve dead skin cells and decongest, while refining and softening the skin, helping to reduce pore size

i n d e x

# section **2**

## **Environmentally Damaged Skin**

- Part **1** Introduction to Environmentally Damaged Skin and Ageing
- Part **2** Development of Environmentally Damaged Skin and Ageing
- Part **3** Causes of Environmentally Damaged Skin and Ageing
- Part **4** Types of Environmentally Damaged Skin and Ageing
- Part **5** Retail Environmentally Damaged and Ageing Ingredients and Products
- Part **6** Advanced Ageing Technology - Nimue Age Intelligent



# Introduction to Environmentally Damaged Skin and Ageing

## Introduction

An environmentally damaged skin can be classified as a skin that presents with clinical signs of premature ageing or photo ageing in varying degrees. Photo ageing is triggered by excessive ultra violet radiation exposure. The ages related to damage serves as a general guideline as the effects of environmental exposure are cumulative.

To be able to determine what the most effective methods will be of improving the signs of ageing and delaying the ageing process for as long as possible, we need to be able to understand what ageing is and how it is visibly reflected on our skin. Importantly, we need to understand what is happening within the skin that is creating the signs that reflect back at us when we look into the mirror.

According to the dictionary, the definition of ageing is as follows - ***“It is the process of growing old and developing the appearance and the characteristics of old age”.***

The formation of wrinkles are considered the most typical characteristic of an ageing skin. Wrinkles will appear as a result of the changes in the lower, dermal layers of the skin. However, ageing is not only characterised by fine lines and wrinkles, it is also accompanied by the following:-

- Loss of elasticity
- Thick or thinning skin
- Hyperpigmentation or uneven colour tone
- Decreased barrier protection leading to dehydration and increased skin sensitivity
- Skin inflammation
- Compromised immune response and barrier repair

Ageing may occur due to intrinsic repair processes in the skin slowing down as well as due to extrinsic factors caused by the environment and other lifestyle factors.

Not only does the external appearance of the skin change due to ageing, but the function and structure of the skin as an organ may also alter.

To be able to best treat an ageing and environmentally damaged skin, it is important to understand its development within the skin.

# Development of Environmentally Damaged and Ageing Skin

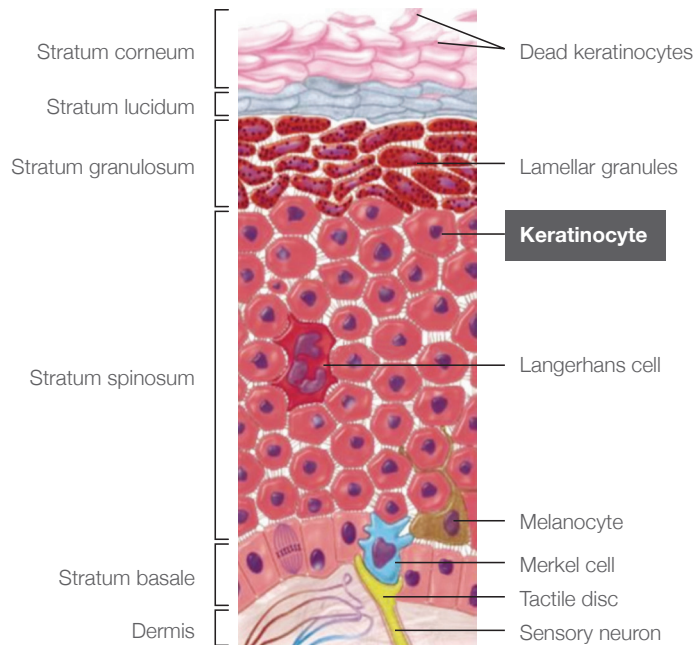
## Developments within the Skin

There are various cellular structures and functions within the skin that changes with the effects of environmental damage and ageing.

### Developments in the Epidermis

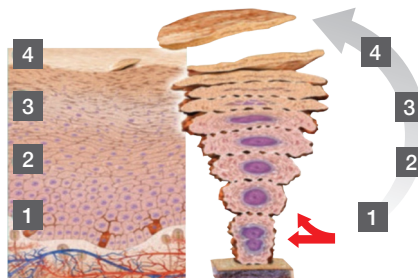
Epidermal atrophy starts taking place where epidermal cell turnover rate and epidermal desquamation rate slows down. This also results in a slower wound healing time.

#### Keratinocytes



- Cell signalling decreases
- Skin's ability to repair DNA decreases
- Epidermal cells may become rigid
- Cell proliferation and differentiation of keratinocyte cells changes as we age

- 20's: 14 - 25 days
- 30's: 30 days
- 40's: 40 days
- 50's: 50 days

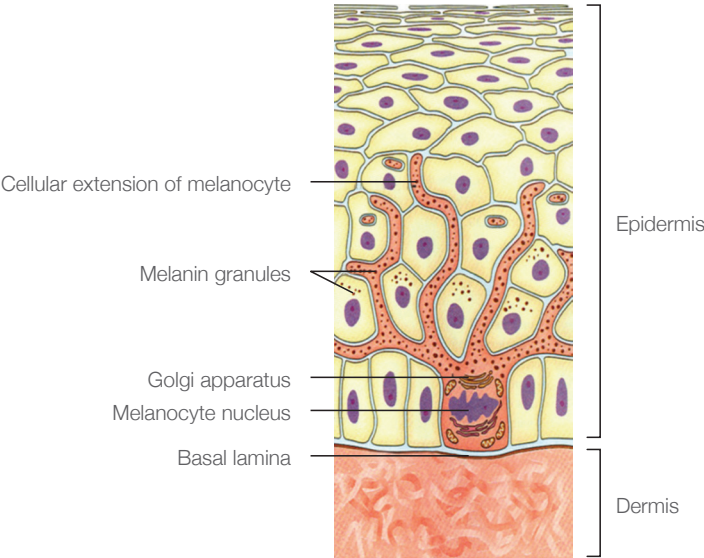


**Result** is either thickening of the stratum corneum, with a leathery appearance or a thinner, more translucent skin due to a thinner living layer in the epidermis.

# Development of Environmentally Damaged and Ageing Skin

## Melanocytes

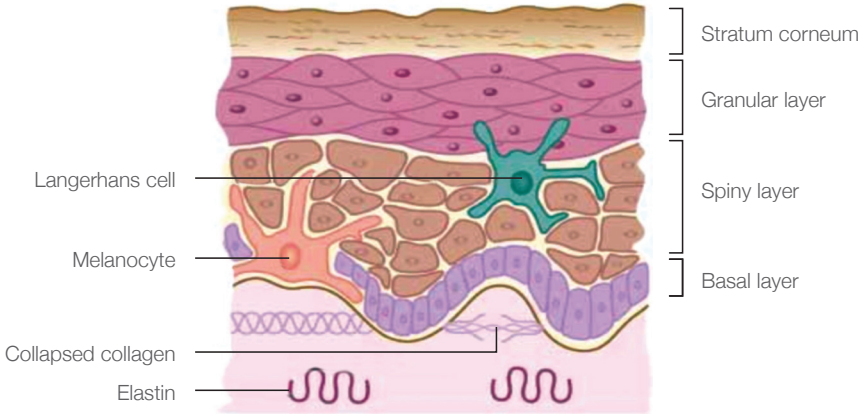
- Decrease in the number of melanocytes
- Shortening of the life span of the melanocyte cells
- Increase in melanogenesis process



**Result** is an alteration in the melanogenesis process with large pigmented spots (age spots, liver spots) appearing in sun-exposed areas.

## Langerhans Cells and Skin Immune System

- Decrease in the number of langerhans cells by 20 - 50%
- Decrease in the skin's immune function

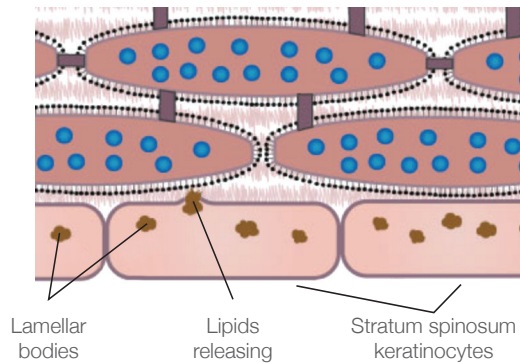


**Result** is a more reactive skin to various stimuli, either internal or external

# Development of Environmentally Damaged and Ageing Skin

## Lipids in the Stratum Corneum

- Decreased lipids in lamellar granules
- Decreased filaggrin resulting in less NMF



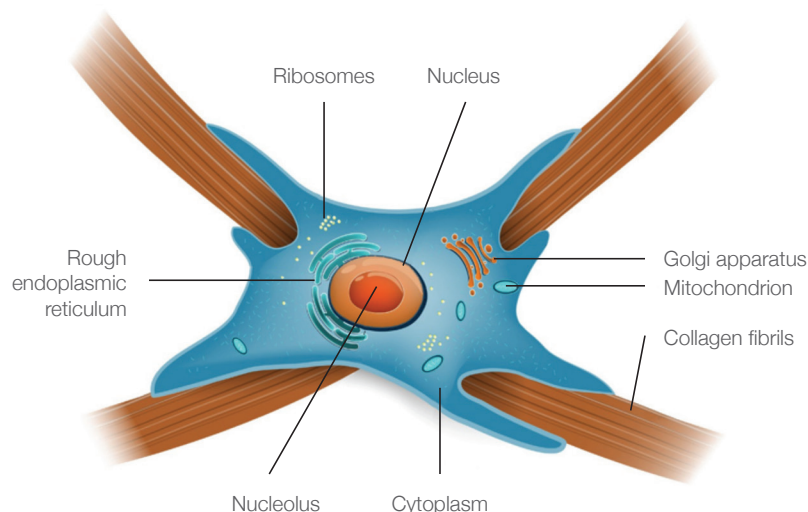
**Result** is a loss of barrier function

## Developments in the Dermis

Dermal changes takes place which influences the external appearance of the skin, particularly with the increase of lines and wrinkles, increase of skin sagging and a decrease in skin hydration levels.

## Fibroblasts

- Decrease in the number of fibroblasts
- Decrease in fibroblast activity

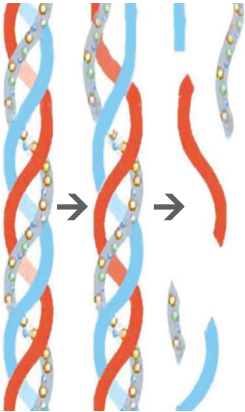


**Result** is a reduction in the synthesis of collagen and elastin fibres

# Development of Environmentally Damaged and Ageing Skin

## Collagen

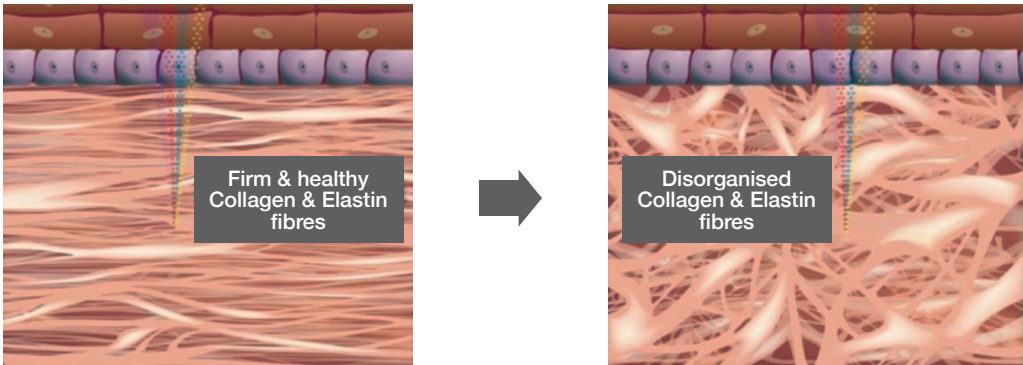
- Decrease in collagen production
- Increase in cross-linked, disorganised and unravelled collagen bundles



**Result** is a loss of skin tone and increased development of fine lines and wrinkles

## Elastin

- Decrease in elastin production
- Amorphous elastin: thickened fibres and a decrease in number of fibrils
- Increase in elastosis
- Loss of fine oxytalan elastin fibres in upper levels of the dermis

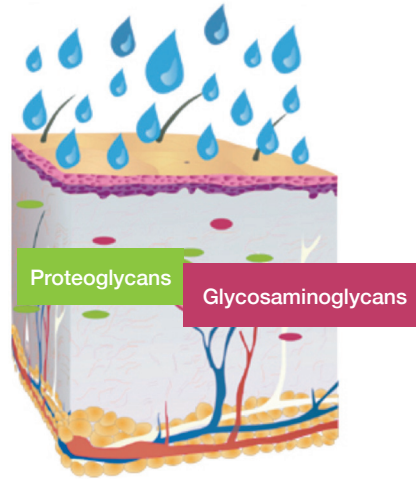


**Result** is a loss of skin strength and elasticity

# Development of Environmentally Damaged and Ageing Skin

## Glycosaminoglycans

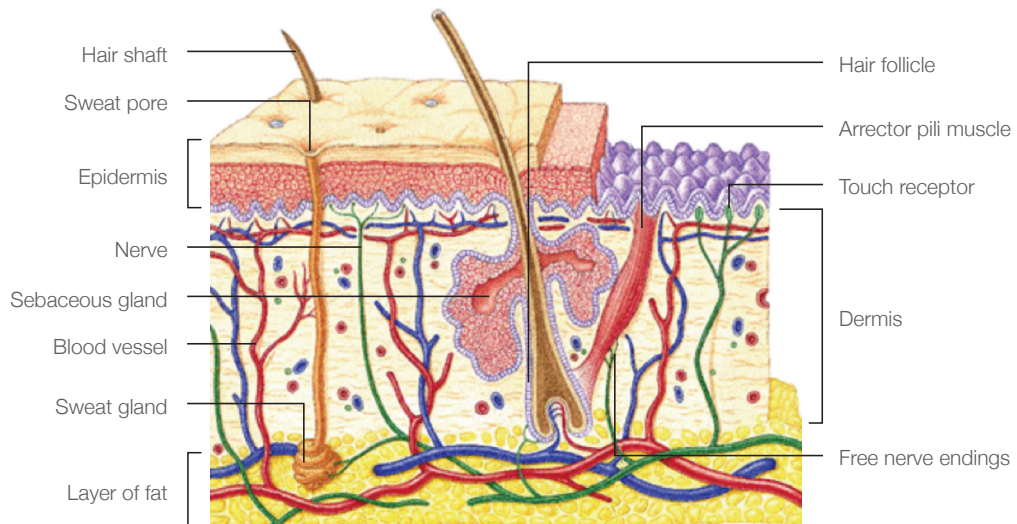
- Decrease in levels of glycosaminoglycans



**Result** is less internal skin hydration, leading to overall surface dehydration of the skin

## Dermal Vascular Bed

- Blood vessels of the dermis become more fragile
- Increase in structural loss



**Result** is bruising and more visible capillaries due to thinning of the skin

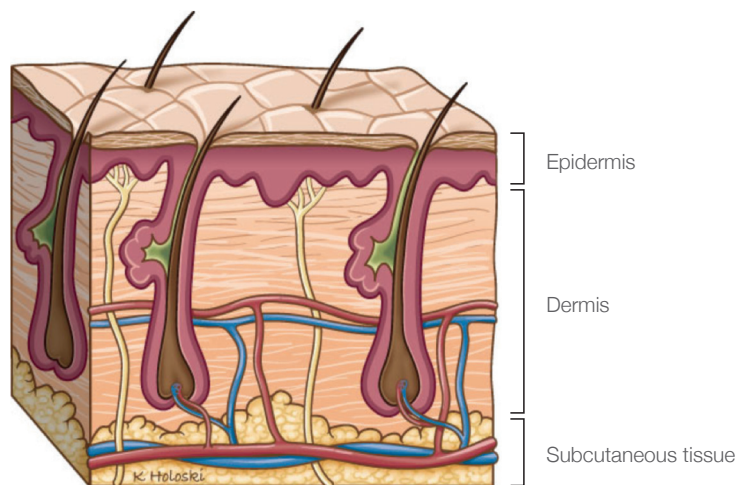
# Development of Environmentally Damaged and Ageing Skin

## Developments in the Hypodermis

The hypodermis is a subcutaneous layer, mainly comprised of adipose tissue. It also undergoes certain changes as ageing takes place, resulting in either a loss or gain of fatty deposits in various areas of the skin.

### Subcutaneous Fat

- Fat cells decline with age
- Increase in structural loss



**Result** is either hollow, sunken cheeks, eye and neck area or accumulation in other areas such as bags under the eyes and fatty deposits under the chin

# Causes of Environmentally Damaged Skin and Ageing

Ageing is inevitable and it is continuous. It is important to understand the factors associated with an environmentally damaged skin and the ageing process as well as the damaging effects that it produces so we are best equipped in learning how to manage and/or prevent it.

Traditionally, we have always looked at intrinsic (internal) and extrinsic (external) factors being the main causes of ageing. Intrinsic factors are generally normal, chronological ageing that is related to our genetic code. External factors are as a direct result of the environment in which we live. UV radiation, pollution, smoking and weather extremes create more damage within the skin than our genetic blue print. Stress, poor nutrition and incorrect product use may also prematurely age the skin.

Besides these factors, there are also various chemical factors that occur in the skin that accelerate the ageing process.

## Three main factors that influence how we age

1. Intrinsic vs extrinsic ageing
2. Hormonal changes
3. Chemical processes

### 1. Intrinsic vs. Extrinsic Ageing

**Intrinsic**

Reflects genetic background  
 Passage of time  
 Beyond our control

**Extrinsic**

Environmental or external factors  
 Smoking, alcohol, nutrition, UV exposure  
 Premature skin ageing

**Intrinsic Characteristics - Chronological Ageing**

- The stratum corneum remains relatively unchanged
- Epidermis and dermis become thinner
- The cell turnover decreases
- The dermal-epidermal connection or junction becomes flatter
- The number and the biosynthetic capacity of fibroblasts decrease
- The balance between synthesis and degradation of ECM is shifted ► reduced synthesis, increased degradation
- Reduced anti-oxidant capacity

Ageing characteristics	Intrinsic skin ageing
Wrinkles	Fine
Pigmentation	Regular
Skin thickness (all layers)	Thinner
Skin texture	Porcelain-like, delicate

# Causes of Environmentally Damaged Skin and Ageing

## Extrinsic Characteristics - Photo Ageing

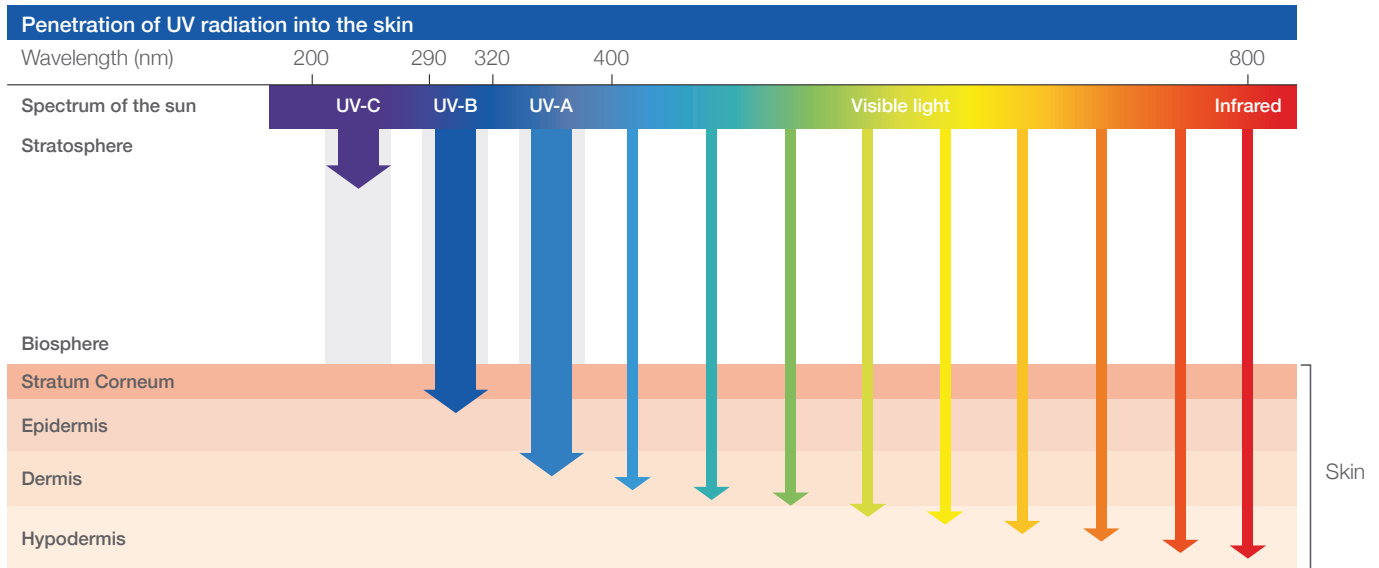
- On light-exposed areas (face, neck, forearms, etc.)
- Skin types I and II are particularly affected
- The cell turnover increases
- The skin (nearly all layers) becomes thicker
- Hyperpigmentation
- Increased elastin synthesis, but accumulation of non-functional, degenerated, elastic material
- Reduced collagen synthesis
- Increased formation of free radicals
- Destruction of the extracellular matrix (ECM), mainly collagen and elastin, due to increased levels of proteases (collagenase and elastase) ► visible signs of premature skin ageing
- DNA damage

Ageing characteristics	Extrinsic skin ageing
Wrinkles	Deeper (thick furrows)
Pigmentation	Irregular
Skin thickness (all layers)	Thicker
Skin texture	Leathery

# Causes of Environmentally Damaged Skin and Ageing

## Intrinsic vs. Extrinsic Ageing - Environmental Exposure

### 1.1 UV Radiation



Wrinkles can be seen as solar scars which is a wound response to UV trauma and a sign that the skin is trying to repair itself.

The accumulation of invisible solar scars result from imperfect repair process over many years of UV exposure. Eventually, at some point, the sum total of invisible solar scars = photo ageing or wrinkles!

Tissue inhibitors or MMP's (Matrix Metalloproteinases) are activated with UV exposure to limit degradation.

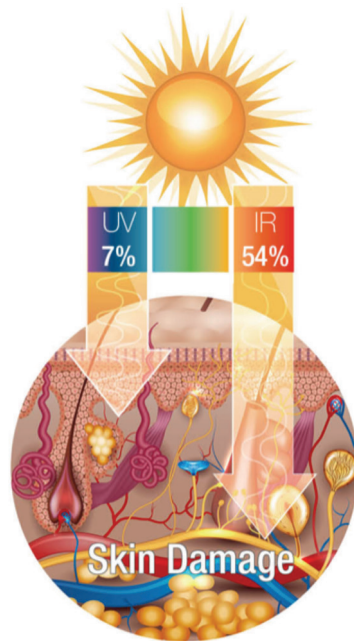
Lines and wrinkles are changes in the skin which are visible with the naked eye. They consist of retractions of the upper skin layers, which are limited by a bulge in linear way. The formation of wrinkles through the body and face is a well-known sign of skin ageing.

Long term UV damage:-

- Elastosis
- Collagen degradation
- Reduced type VII collagen
- Melanocytes double
- Impaired melanosome transfer
- Langerhans cells decrease

# Causes of Environmentally Damaged Skin and Ageing

## 1.2 Infra Red Radiation



In the past, we mainly focused on the ageing and damaging effects of UV radiation and sun screen formulations were focused on the protection against UV radiation only.

Infra red radiation was not addressed as it was not considered dangerous and not much research was done on this part of the electromagnetic spectrum.

However, we now see that infra red radiation, particularly IR A, creates free-radicals in the dermis and reduces the skin's anti-oxidant capacity.

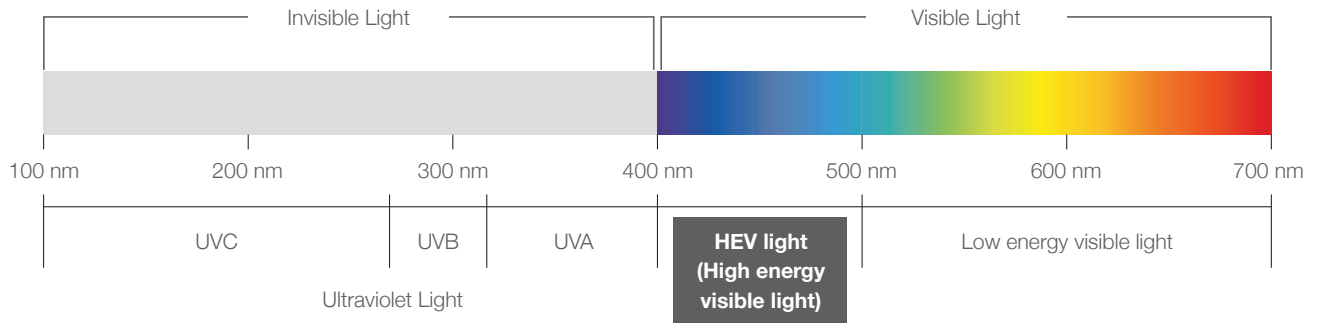
UVA and UVB accounts for 7% of total solar energy whereas infra red accounts for 54% of total solar energy.

Effects of infra red radiation:-

- 700 nm -1 mm
- Accelerated skin ageing
- Oxidative stress
- DNA damage
- Collagen degradation
- Decrease in cell turn over

# Causes of Environmentally Damaged Skin and Ageing

## 1.3 HEV



HEV stands for High Energy Visible Light. This falls under the violet colour of the visible light spectrum. Latest studies have proven that this is the next light energy source to be aware of that causes photo ageing.

HEV can typically be emitted from mobile phones, high definition televisions, computers, laptops, electronic equipment, fluorescent lights, etc.

Effects of HEV:-

- 380 nm - 780 nm
- Results in a weaker barrier function which leads to TEWL
- Increased dryness and sensitivity
- Increase in the number of senescent cells
- Depressed immunity and suppressed healing
- Inflammation and redness
- Wrinkles, skin sagging and uneven pigmentation

## 1.4 Climate

Hot or cold, humid or dry - Climate has a profound impact on skin. As our outermost layer, skin is the organ most vulnerable to external influences. Climate is one of the major factors that can change the behaviour of the skin for better or for worse.

*Cold climate*

- Cold air tends to be dry air with a very low humidity factor.
- When less moisture is in the air, skin can become dry. Wispy winds can further deplete skin of moisture.
- In colder climates or the winter season, our natural sebum cannot keep up with the hydration demands of dry skin, which often leads to common dry skin conditions.

# Causes of Environmentally Damaged Skin and Ageing

- The most frequently occurring cold climate skin problems are eczema, dermatitis, rosacea, cracking or scaliness, itchiness, redness or a coarse texture.
- Unfortunately, once the skin becomes dry, the vicious cycle of dehydration continues because cracking allows more moisture to escape from the tiny fractures created. Because dry skin can't hold in nutrients, each of these conditions can lead to premature ageing in the form of fine lines, wrinkles, sagging and dull skin.

## *Hot climate*

- Warm climates are often accompanied with humidity, which may be beneficial for the skin, however, the heat is associated with the sun, posing an increased risk for sun damage.
- UV rays from the sun are extremely damaging to skin cells and is seen as the leading cause of premature skin ageing.
- The summer seasons and tropical climates are high risk for the skin and prevention against environmental damage and ageing is extremely important.
- Sun exposure can also lead to skin cancer and other forms of cancer. As more toxic pollutants have been released into the air, the sun's harmful effects on the skin is accelerated.
- High temperatures cause perspiration and excess sebum production which may clog the pores resulting in a heat rash.
- Bacterial and fungal infections breed in hot, humid climates.

## 1.5 Pollution and Premature Ageing

Studies have shown that there is a link between exposure to air pollution and uneven skin tone, loss of elasticity, wrinkles and premature ageing. Airborne pollutants and toxins can connect with UV rays and can affect the skin as it causes free radicals and affects the oxygen levels within the skin. It may also affect the collagen production within the dermis, leading to premature ageing.

It is imperative that we focus on the effects that pollution has on the skin and how it has been seen to accelerate the ageing process within the skin.

Symptoms of a pollutant exposed skin:

- Premature ageing
- Inflammation
- Oxidative stress
- Protein and DNA damage
- Skin irritation or allergies
- Lipid peroxidation (**Lipid peroxidation** is the oxidative degradation of **lipids** within the skin)
- Dry, wrinkled and dull skin

# Causes of Environmentally Damaged Skin and Ageing

## 2. Hormonal Changes

Various changes in hormone levels within the endocrine system result in specific changes within the skin, including ageing. This may not always be associated with the natural decline in hormone levels as we age, but could be due to alternate factors leading to the imbalance of these hormones.

### 2.1 Oestrogen

Oestrogen promotes the development and maintenance of female characteristics of the body. A decline in the levels of oestrogen can affect all systems and organs of the body, including the skin.

Symptoms of oestrogen decline within the skin:

- Collagen production and quality decreases
- Increased fine lines and wrinkles
- Skin thickness decreases
- Premature skin ageing

### 2.2 Vitamin D<sub>3</sub>

Vitamin D<sub>3</sub> may be the most important nutrient in our bodies. It is the only vitamin that is also a hormone and is important for every cell in the body. Vitamin D<sub>3</sub> is synthesised in the skin upon adequate and specific exposure to sunlight (specifically UVB radiation), hence the name “sunshine vitamin”. Cutaneous Vitamin D<sub>3</sub> deficiency is very common with age, particularly with women.

Symptoms of Vitamin D<sub>3</sub> deficiency within the skin:

- Decreased protection against infectious microbes
- Less inhibition of UV induced apoptosis
- Decreased protection against oxidative stress
- Damage of cellular DNA
- Impaired skin barrier
- Ageing skin

# Causes of Environmentally Damaged Skin and Ageing

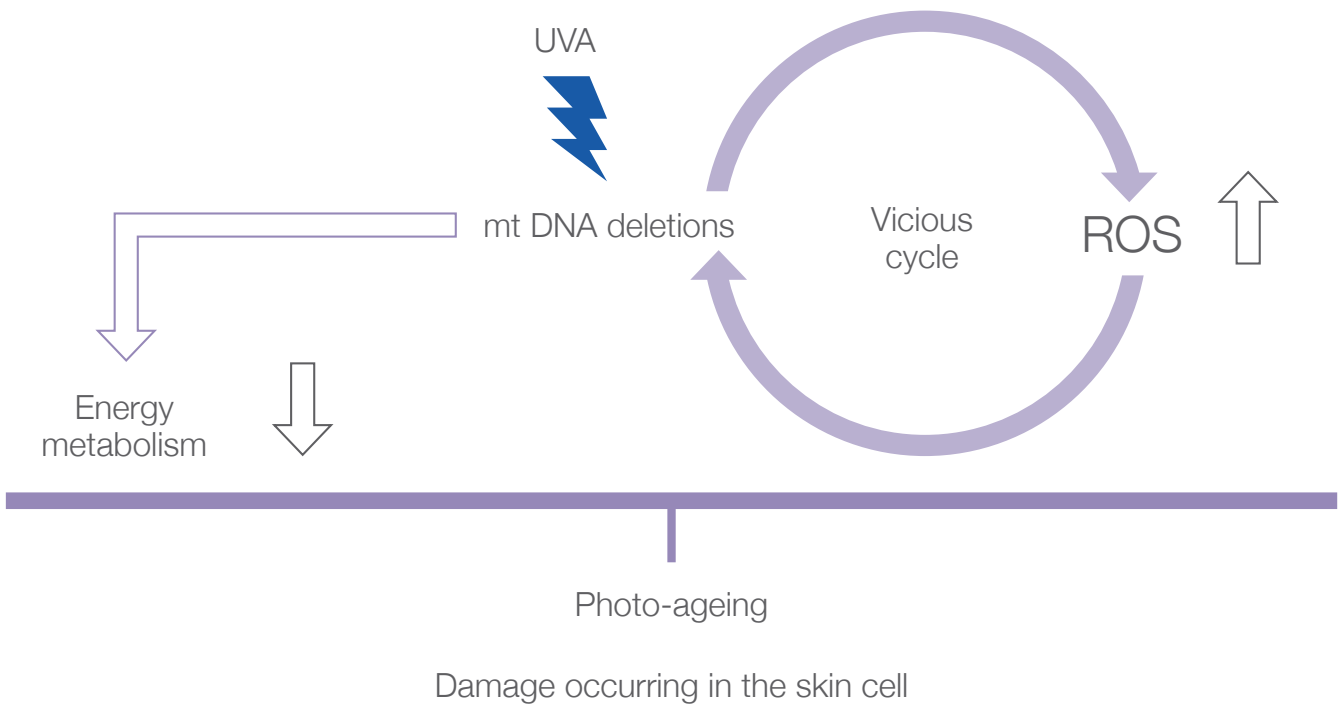
## 3. Chemical Processes

There are certain chemical reactions within the skin that have an effect on the ageing process, possibly accelerating it. The following chemical processes have been taken into consideration with product formulation where specific ingredients have been chosen to manage certain cellular functions and reactions that affect skin ageing:

### 3.1 Reactive Oxygen Species and Inflammation (ROS)

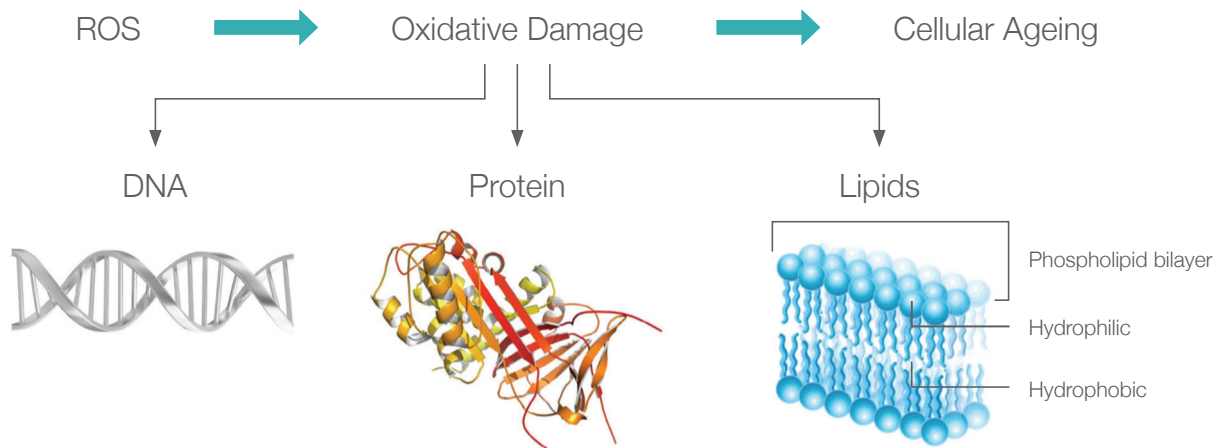
Both the nucleus and the mitochondria have DNA. The nucleus DNA generally has a strong defence system. The mitochondria also has a smaller selection of DNA. This mt DNA changes more rapidly than the DNA in the nucleus as it has a weaker defence system.

When exposed to repetitive UVA exposure, the skin goes through a series of changes including inflammation, cross-linking of collagen which causes ageing and cell disease. This series of changes is due to ROS, also known as Reactive Oxidative Stress. It leads to a decrease in cellular energy as well as photo-ageing and if ROS is not controlled, it could lead to the mutation of DNA in the mitochondria causing disease (skin cancer) and possibly cell death.



# Causes of Environmentally Damaged Skin and Ageing

Besides the oxidative damage that ROS causes, it also affects the skin proteins, which are the elastin and collagen protein fibres in the skin, as well as the depletion of essential skin lipids which forms part of the skin barrier, leading to a loss of moisture and a more dry and dehydrated skin.



Prolonged and continuous oxidative damage results in cellular ageing.

Besides UVA exposure resulting in the development of ROS within the skin, ROS may also be caused by the following:-

- Pollution
- Cigarette smoke
- Infections
- Harsh skin ingredients
- General environmental stress

Then there are the effects of skin inflammation which, after the sun, is the skin enemy number one. Inflammation can be classified as a localized protective reaction of tissue to irritation, injury, or infection, characterized by pain, redness, swelling, and sometimes loss of function. Inflammation is the body's response to a negative stimulus, be it infection or irritation. Just as inflammation in the body can lead to disease and ageing, inflammation in the skin can cause wrinkles, acne, hives, even eczema and rosacea.

Free radical damage may also fuel chronic inflammation and cause fine lines and wrinkles, the breakdown of collagen, abnormal increase of elastin resulting in elastosis and a loss of moisture.

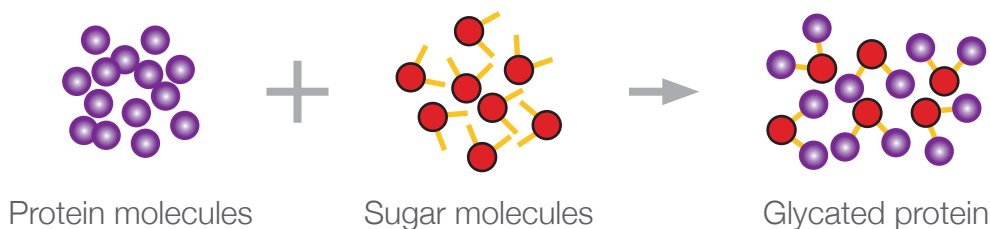
# Causes of Environmentally Damaged Skin and Ageing

## 3.2 Glycation leading to Advanced Glycation End Products (AGE's) or Glycotoxins

Glycation occurs when a sugar molecule (eg. glucose or fructose) binds or cross-links with a protein or lipid molecule without the controlling act of an enzyme.

Glycation was first observed and understood in connection with diabetes. High sugar content in the blood leads to glycation in all tissue that is irrigated by blood, with sometimes dramatic consequences such as blindness, renal failure, heart attacks, fragile blood vessels and **skin ageing**.

Glycation results in a loss of elasticity, wrinkles, stiffness, weakened barrier and ageing. It results in the formation of **Advanced Glycation End Products** (also known as AGE's or Glycotoxins).

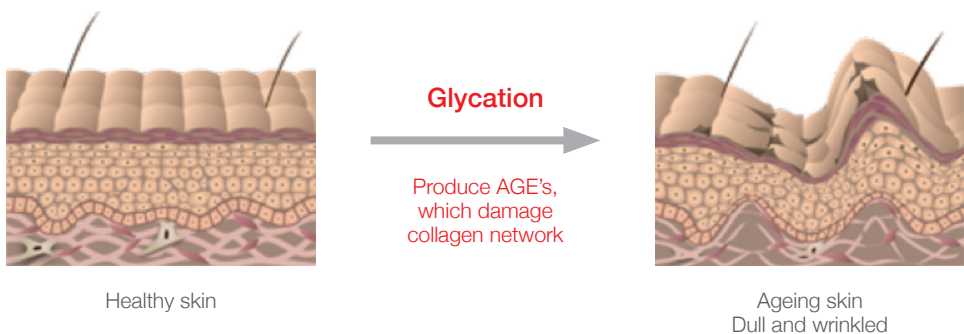


The top 5 foods that causes glycation within the skin and in turn, inflammation are sugar, transfats, white breads and pasta, fast foods and alcohol.

AGE's or Glycotoxins have the following consequences in the skin:-

- An impaired skin barrier function which includes changes in skin permeability leading to TEWL (Trans Epidermal Water Loss)
- A breakdown in the anti-microbial barrier functioning of the skin
- Affects mitochondrial proteins, decreasing cellular energy

AGE's particularly set themselves up in the dermal collagen and elastin (protein molecules) and threaten the fibroblast cells. As the skin may detect the AGE's as a foreign skin substance, inflammation may occur as the skin naturally tries to defend itself against a substance that is not recognised. **Ultimately, the result is a dull complexion, dark circles around the eyes, sagging skin and of course, SKIN AGEING!**

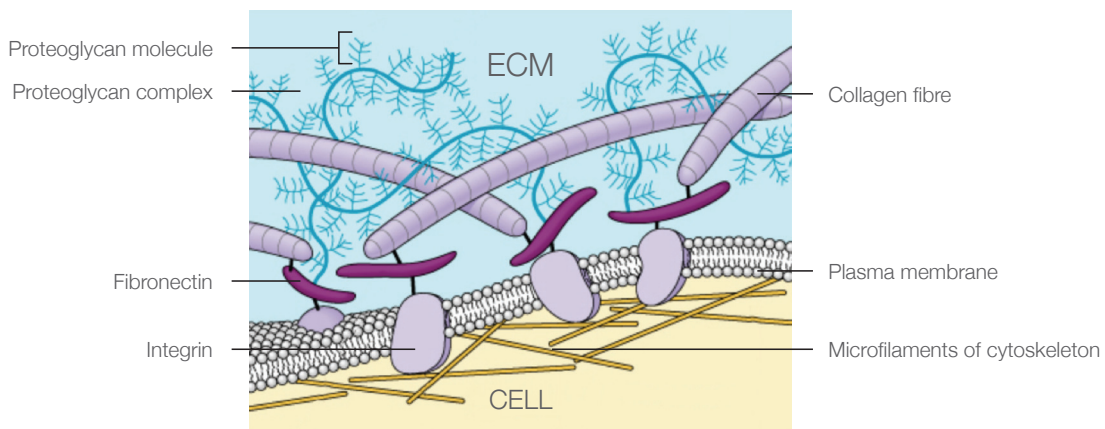


# Causes of Environmentally Damaged Skin and Ageing

## 3.3 Activation of MMP's (Matrix Metalloproteinases)

Within the dermis, there is the ECM (Extra Cellular Matrix) that provides structural and biochemical support to the surrounding cells. It is made up of GAGs and hyaluronic acid and it provides the skin with support and plumpness.

Fibroblast cells, producing the collagen and elastin fibres, and appendages, are suspended in the extra cellular matrix.



MMP's are matrix metalloproteinases found in the dermis. They are enzymes that control tissue breakdown in the dermis and play an important role in wound healing so that new connective tissue can be formed. It does this by breaking down aged and damaged collagen and elastin into smaller parts or peptides.

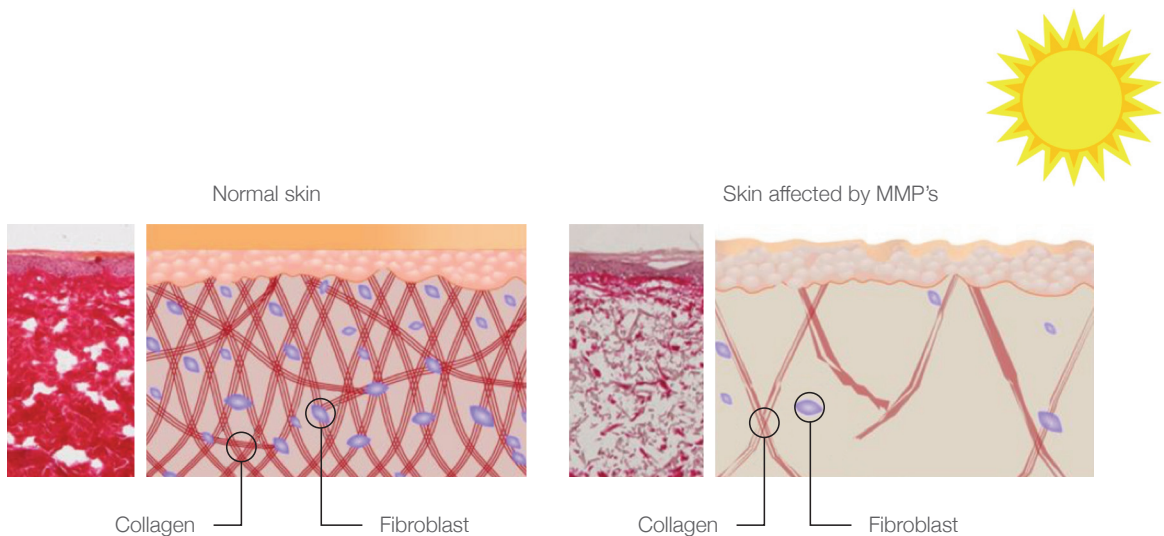
This is the skin's natural process of rejuvenation by destroying and removing debris of older cells and replacing them with new fibroblast cells which will give rise to healthy collagen and elastin fibres. Examples of these MMP proteins in the ECM are collagenase, elastase and hyaluronidase. They break down collagen, elastin and hyaluronic acid respectively.

# Causes of Environmentally Damaged Skin and Ageing

## MMP's and the Effects on Ageing

When there is an excess of matrix metalloproteinases present, caused by UVA and UVB exposure, MMP's can increase as a result of ROS (Reactive Oxidative Stress).

Additional factors for excess MMP production are medication and the natural ageing process.




The MMP enzymes become more active and degrade the fibroblast cells and connective tissue at a faster rate than normal.

The result is ageing, loss of elasticity, thinning skin, increase in skin redness and moisture loss.



# Types of Environmentally Damaged Skin

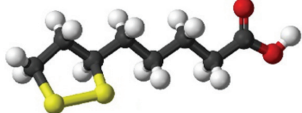


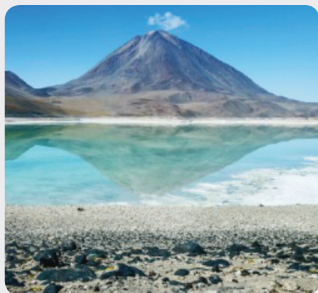
There are different types of environmentally damaged skin that present with these primary characteristics:

Level of damage	Age	Cell turnover length	Characteristics	Visual
Mild damage	20 - 30 years old	14 - 25 days	<p><b>Fine lines</b></p> <p>During the early 20's, the skin starts to show early signs of ageing that we describe as mild damage. The cell turnover length is 14 - 25 days and the first fine lines may start to appear around the eyes and mouth. Early signs of possible sun damage resulting in pigmentation may be seen.</p>	
Moderate damage	30 - 40 years old	30 days	<p><b>Fine lines and initial wrinkling</b></p> <p>Around this time, fine lines may deepen into more pronounced wrinkles. Dark spots and hyperpigmentation may start to appear. Cell turnover rate starts to slow down and is now approximately 30 days. The skin might start to look dull and feel much drier.</p>	
Advanced damage	40 - 50 years old	40 days	<p><b>Persistent wrinkling</b></p> <p>In the 40's, collagen starts to break down in the skin causing lines and wrinkles to be much more evident. Skin cell renewal is much slower with an approximate 40 day cell turnover.</p>	
Severe damage	50+	50 days+	<p><b>Severe wrinkling</b></p> <p>Skin tone is likely to become rougher, with an increase of sun induced pigmentation starting to show. Deeper lines and wrinkles will be visible. The cell turnover is now over 50 days. The skin might start to thin out and become much more sensitive and vulnerable to damage.</p>	


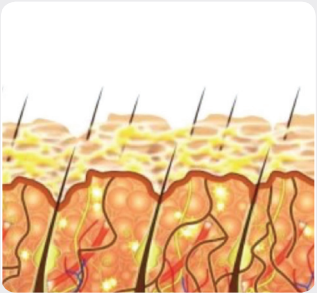

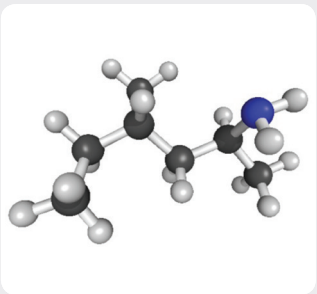


# Retail Environmentally Damaged and Ageing Ingredients and Products


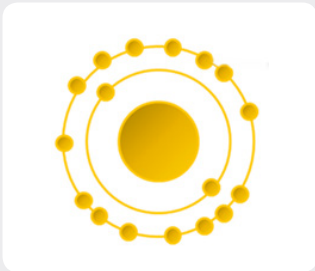

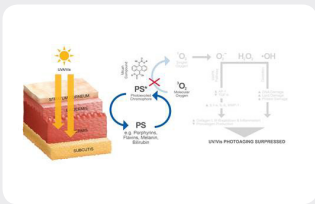
## Nimue Environmentally Damaged and Ageing Ingredients - Retail

Active ingredient	Key function	Benefit	Nimue product
<p><b>Alpha Lipoic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Super anti-oxidant</li> </ul>	<ul style="list-style-type: none"> <li>■ Neutralises the effects of free radicals.</li> <li>■ Optimises cellular metabolism and prevents glycation.</li> </ul>	
<p><b>Amphoteric Glycolic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Rejuvenating</li> <li>■ High penetrative capacity</li> <li>■ Hydrating properties</li> </ul>	<ul style="list-style-type: none"> <li>■ The amphoteric system is the creation of a “new” delivery system for glycolic acids, ie. slow release.</li> <li>■ The “actives” are still the same as before however, because they are available to the skin over a certain period, the potential irritation is eliminated.</li> <li>■ Small molecular weight and size.</li> </ul>	
<p><b>Argan Stem Cells</b></p> 	<ul style="list-style-type: none"> <li>■ Dermal rejuvenation</li> <li>■ Combats chronological ageing</li> </ul>	<ul style="list-style-type: none"> <li>■ Argan stem cells are epigenetic - they have the ability to regulate the activity of dermal stem cells and maintain the dermal stem cell capacity for self-renewal and vitality.</li> </ul>	
<p><b>Artemia Salina</b></p> 	<ul style="list-style-type: none"> <li>■ Reduces sensitivity to UV &amp; IR radiation and inflammation</li> <li>■ Restores skin functioning</li> </ul>	<ul style="list-style-type: none"> <li>■ Resists and absorbs pro-ageing solar radiations and pro-ageing thermal shock.</li> </ul>	

# Retail Environmentally Damaged and Ageing Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>Botanical Stem Cell Extract</b></p> 	<ul style="list-style-type: none"> <li>■ Protects epidermal stem cells</li> </ul>	<ul style="list-style-type: none"> <li>■ Protects the skin against stress and improves longevity of skin cells.</li> <li>■ Has a wrinkle reduction effect within the skin.</li> </ul>	
<p><b>Ceramides</b></p> 	<ul style="list-style-type: none"> <li>■ Improves corneocyte cohesion</li> <li>■ Restores the skin barrier</li> </ul>	<ul style="list-style-type: none"> <li>■ Ceramides boosts cellular communication mechanism and visibly reduces the signs of ageing.</li> </ul>	
<p><b>Chicory Root Extract</b></p> 	<ul style="list-style-type: none"> <li>■ Restores the skin barrier</li> </ul>	<ul style="list-style-type: none"> <li>■ Restructures the skin and activates the signaling pathways regulated by Vitamin D receptors.</li> </ul>	
<p><b>DMAE</b></p> 	<ul style="list-style-type: none"> <li>■ Tightening effect</li> </ul>	<ul style="list-style-type: none"> <li>■ Creates tightening through indirect stimulation of muscle contraction and counteracts sagging skin.</li> <li>■ Strengthens the cell membranes and has a tightening effect on the skin.</li> </ul>	




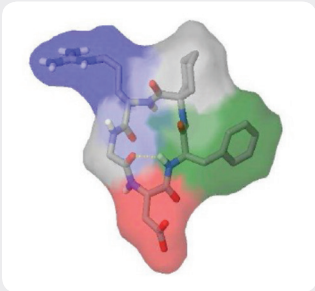
# Retail Environmentally Damaged and Ageing Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>Encapsulated Vit A, C, E</b></p> 	<ul style="list-style-type: none"> <li>■ Increased stability and penetration of ingredients</li> <li>■ Vitamin A: epidermal thickness</li> <li>■ Vitamin C: anti-oxidant</li> <li>■ Vitamin E: healing</li> </ul>	<ul style="list-style-type: none"> <li>■ Vitamins and Borage oil are incorporated into liposomes from phospholipids which are easily absorbed by the cell membranes into the cells of the skin.</li> <li>■ Borage oil is dispersed to fine droplets and lipidic vitamin esters are dissolved in the core.</li> <li>■ The liposomes then easily penetrate into the lipid matrix of the stratum corneum where they break and start to release the incorporated actives.</li> </ul>	
<p><b>Environmental Shield Polymer</b></p> 	<ul style="list-style-type: none"> <li>■ Powerful anti-oxidant</li> </ul>	<ul style="list-style-type: none"> <li>■ Metal chelator - binds to toxic metals</li> <li>■ Traps, neutralises and removes metal ions</li> <li>■ Creates a shield on the skin</li> </ul>	
<p><b>Enzymes</b></p> 	<ul style="list-style-type: none"> <li>■ Digests bonds between corneocytes</li> <li>■ Accelerate natural exfoliation</li> <li>■ Unblocks pores</li> </ul>	<ul style="list-style-type: none"> <li>■ Enzymatic exfoliator to promote desquamation of stratum corneum cells.</li> </ul>	
<p><b>Fused Ring Cyanoacrylate</b></p> 	<ul style="list-style-type: none"> <li>■ Stops ROS formation</li> </ul>	<ul style="list-style-type: none"> <li>■ Blocks formation of light induced oxidative stress</li> <li>■ Prevents visible signs of photo ageing</li> <li>■ Prevents damage to cellular matrix</li> </ul>	




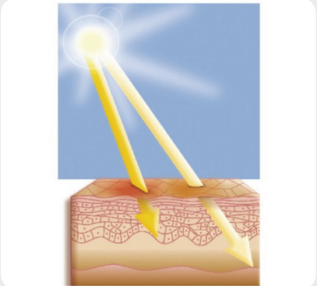
# Retail Environmentally Damaged and Ageing Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>GGP (Geranylgeranyliso-propanol)</b></p> 	<ul style="list-style-type: none"> <li>■ Rejuvenation</li> </ul>	<ul style="list-style-type: none"> <li>■ Protects cells from oxidative damage.</li> <li>■ Delays metabolic and nucleus senescence thereby maintaining skin rejuvenation and anti-ageing.</li> </ul>	
<p><b>Glycine Soja (Soyabean Seed Extract)</b></p> 	<ul style="list-style-type: none"> <li>■ DNA repair for rejuvenation</li> <li>■ Fights biological and UV induced ageing</li> </ul>	<ul style="list-style-type: none"> <li>■ Consists of proteins, glycoproteins and polysaccharides.</li> <li>■ Soyabean extract stimulates the natural defense system of the skin and can be defined as a biological UV protector, which helps reduce severe photo damage and accelerated skin ageing.</li> </ul>	
<p><b>Kaolin</b></p> 	<ul style="list-style-type: none"> <li>■ Increased stability and penetration of active substances</li> </ul>	<ul style="list-style-type: none"> <li>■ Reduce production of sebum.</li> </ul>	
<p><b>Lacto Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Oily skin: reduce sebaceous activity</li> <li>■ Dry skin: increase sebaceous activity</li> </ul>	<ul style="list-style-type: none"> <li>■ Balance sebaceous gland function in oily or dry skin.</li> </ul>	



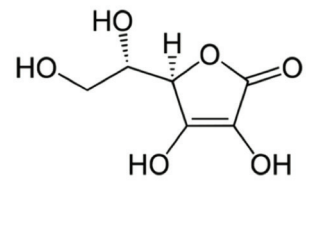
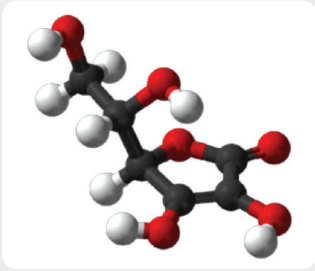
# Retail Environmentally Damaged and Ageing Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>LMW (Low Molecular Weight) Hyaluronic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Superior moisturizing effect</li> <li>■ Reduces redness</li> </ul>	<ul style="list-style-type: none"> <li>■ Penetrates the stratum corneum and attracts water into the cell wall to retain moisture in the cell.</li> </ul>	
<p><b>Manilkare Multinervis</b></p> 	<ul style="list-style-type: none"> <li>■ Improves skin firmness and tone</li> </ul>	<ul style="list-style-type: none"> <li>■ Has anti-elastase (MMP's) and anti-glycation properties.</li> <li>■ Stimulates the production of elastin, assisting in an increase in elasticity and skin firmness.</li> </ul>	
<p><b>Milk Peptides</b></p> 	<ul style="list-style-type: none"> <li>■ Boosts collagen, hyaluronic acid and fibronectin</li> </ul>	<ul style="list-style-type: none"> <li>■ Improvement in elasticity, thickness and firmness.</li> <li>■ Supports the renewal of damaged and aged skin by supporting and maintaining healthy fibroblasts.</li> </ul>	
<p><b>Peptides</b></p> 	<ul style="list-style-type: none"> <li>■ Rejuvenating</li> <li>■ Anti-ageing</li> </ul>	<ul style="list-style-type: none"> <li>■ Rejuvenating peptides enhance cellular energy and preserves the structural and functional state of the skin by stimulating collagen synthesis.</li> <li>■ Anti-ageing peptides reduces muscle contractions, smoothing expression lines.</li> </ul>	


# Retail Environmentally Damaged and Ageing Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>SBMC (Scientifically Balanced Moisturising Complex)</b></p> 	<ul style="list-style-type: none"> <li>■ Re-enforces the skin's natural barrier</li> </ul>	<ul style="list-style-type: none"> <li>■ Forms an intelligent structural layer on the skin's surface.</li> <li>■ Assists in the formation of the lipid bilayers on the surface of the skin, strengthening the skin barrier.</li> </ul>	
<p><b>Shea Butter</b></p> 	<ul style="list-style-type: none"> <li>■ Healing</li> <li>■ Nourishing</li> </ul>	<ul style="list-style-type: none"> <li>■ Shea butter, which also contains vitamin A and E, has high content of unsaponifiables and phytosterol, which have antimicrobial properties.</li> </ul>	
<p><b>Sorghum Bicolour Stalk Juice</b></p> 	<ul style="list-style-type: none"> <li>■ Immediate tightening</li> </ul>	<ul style="list-style-type: none"> <li>■ Forms a stretching film on the surface of the skin to provide an immediate and durable tightening effect.</li> <li>■ The immediate results are skin smoothness and firmness.</li> </ul>	
<p><b>Sun Protection Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Reduces and prevents the harmful effects of UV rays on the skin</li> </ul>	<ul style="list-style-type: none"> <li>■ Combination of organic and inorganic sunscreens provide broad spectrum protection against UVA and UVB rays. SPF boosters further enhances the SPF.</li> </ul>	

# Retail Environmentally Damaged and Ageing Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>Triple AHA Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Skin rejuvenation</li> </ul>	<ul style="list-style-type: none"> <li>■ Rejuvenates the skin and promotes exfoliation. Promotes collagen synthesis, firming the skin and reducing the appearance of fine lines and wrinkles.</li> </ul>	
<p><b>Amphoteric Triple AHA Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Skin rejuvenation</li> <li>■ Collagen synthesis</li> </ul>	<ul style="list-style-type: none"> <li>■ The amphoteric system is the creation of a “new” delivery system for the AHA’s (Glycolic and Lactic Acid), i.e, slow release.</li> <li>■ The “actives “are still the same as before however, because they are available to the skin over a certain period the potential irritation is eliminated.</li> </ul>	
<p><b>Vitamin A Ester</b></p> 	<ul style="list-style-type: none"> <li>■ Increase cell renewal</li> <li>■ Activates collagen production</li> <li>■ Normalises keratinisation</li> </ul>	<ul style="list-style-type: none"> <li>■ Used for its rejuvenation properties through repairing and treating signs of environmental or photo damage in the skin.</li> </ul>	
<p><b>Vitamin C L-Ascorbic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Rejuvenation and anti-oxidant protection</li> </ul>	<ul style="list-style-type: none"> <li>■ High potency stabilised Vitamin C. Stimulates collagen synthesis and is a pigment inhibitor.</li> </ul>	

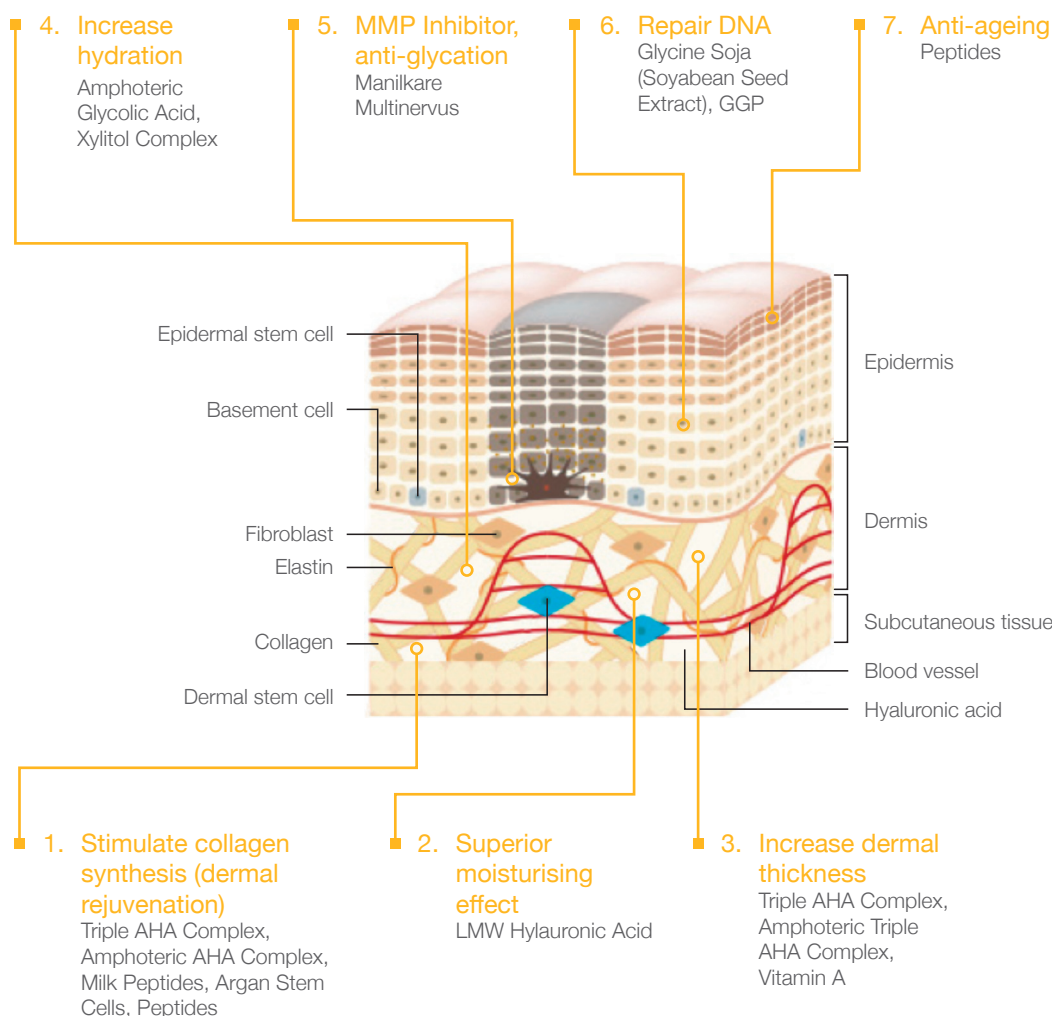
# Retail Environmentally Damaged and Ageing Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>Xylitol Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Epidermal and dermal moisturisation</li> </ul>	<ul style="list-style-type: none"> <li>■ As a humectant, it increases skin moisture by increasing GAGS.</li> <li>■ It provides immediate and long term epidermal hydration and decreases TEWL.</li> </ul>	

# Retail Environmentally Damaged and Ageing Ingredients and Products

## Direct effect within the skin

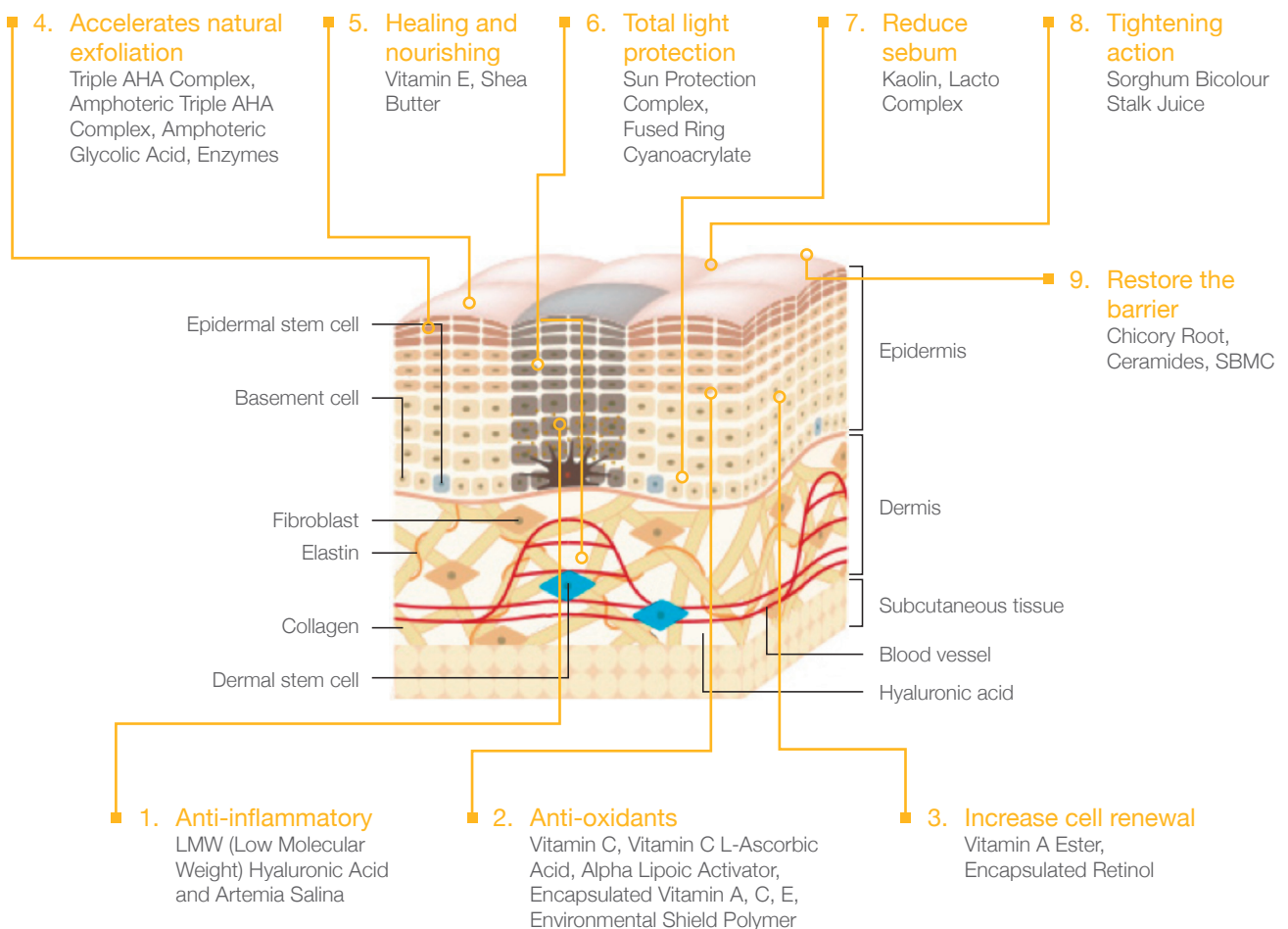
1. Stimulate collagen synthesis (dermal rejuvenation)
2. Superior moisturising effect
3. Increase dermal thickness
4. Increase hydration
5. MMP inhibitor, anti-glycation
6. Repair DNA
7. Anti-ageing



# Retail Environmentally Damaged and Ageing Ingredients and Products

## Indirect effect within the skin

1. Anti-inflammatory
2. Anti-oxidants
3. Increase cell renewal
4. Accelerates natural exfoliation
5. Healing and nourishing
6. Total light protection
7. Reduce sebum
8. Tightening action
9. Restore the barrier





Eye Make Up Remover		100ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>Gently and effectively removes eye and lip make up</li> <li>Increased moisturisation</li> <li>Brightens the eye area</li> </ul>		<ul style="list-style-type: none"> <li>GGP</li> <li>Shea Butter</li> </ul>		



Cleansing Gel		140ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Soap-free, creamy gel cleanser</li> <li>Gently hydrates</li> </ul>		<ul style="list-style-type: none"> <li>1.4% Triple AHA Complex</li> </ul>		



Conditioner		140ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Improves texture</li> <li>Degreasing and deep cleansing</li> <li>Anti-bacterial and anti-inflammatory</li> </ul>		<ul style="list-style-type: none"> <li>7% Triple AHA Complex</li> </ul>		



Cleansing Milk		140ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>Light exfoliation and increased hydration</li> <li>Restores the skin's natural balance</li> </ul>		<ul style="list-style-type: none"> <li>1% AHA Complex</li> <li>Milk Peptides</li> <li>Ceramide-3</li> </ul>		



Nimue Day		50ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Reduces fine lines and wrinkles</li> <li>Improves hydration and barrier protection</li> </ul>		<ul style="list-style-type: none"> <li>0.5% Triple AHA Complex</li> <li>3% Lacto Complex</li> </ul>		



Multi Day Plus+		50ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Mature environmentally damaged skin</li> <li>Reduces dryness, dehydration and wrinkles</li> <li>Improves skin firmness</li> </ul>		<ul style="list-style-type: none"> <li>0.5% Triple AHA Complex</li> <li>Argan Stem Cells</li> <li>Soybean Seed Extract</li> </ul>		

# Environmentally Damaged Products



Nimue Night (Moisturiser Plus)	50ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>Regulates sebum activity and improves hydration</li> <li>Reduces fine lines and wrinkles</li> </ul>		<ul style="list-style-type: none"> <li>5% Amphoteric Triple AHA Complex</li> <li>Encapsulated Vitamin A, C &amp; E Complex</li> </ul>	



Multi Night Plus+	50ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Mature, dry skin with discomfort</li> <li>Reduces skin sagging</li> <li>Improves skin firmness and elasticity</li> </ul>		<ul style="list-style-type: none"> <li>5% Amphoteric Triple AHA Complex</li> <li>Argan Stem Cells</li> <li>Milk Peptide Complex</li> </ul>	



Exfoliating Enzyme	60ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>Non-irritating, non-abrasive enzymatic exfoliation</li> <li>Refines skin texture</li> </ul>		<ul style="list-style-type: none"> <li>Papaya Enzymes</li> <li>Pineapple Enzymes</li> </ul>	



Element Barrier	20ml/100ml	Main Ingredients	pH 6.0
<ul style="list-style-type: none"> <li>Moisturises the stratum corneum</li> <li>Reduces sensitivity to UV radiation, Infra-red and inflammation</li> </ul>		<ul style="list-style-type: none"> <li>Complex of Phyto-ceramides-6</li> <li>Artemia Salina Extract</li> </ul>	



SPF 40	60ml	Main Ingredients	pH 6.5
<ul style="list-style-type: none"> <li>Lightweight, non-oily and non-whitening emulsion</li> <li>Protection against UVA/UVB</li> <li>Anti-ageing benefits</li> </ul>		<ul style="list-style-type: none"> <li>Inorganic Physical Sunscreen</li> <li>Organic Chemical Sunscreen</li> </ul>	



Tinted SPF 40	60ml	Main Ingredients	pH 6.5
<ul style="list-style-type: none"> <li>Protection against UVA/UVB</li> <li>Reduces the appearance of dark areas, pigment spots and redness</li> <li>Available in 3 shades: light, medium, dark</li> </ul>		<ul style="list-style-type: none"> <li>Inorganic and Organic Sunscreens</li> <li>Colour pigments</li> </ul>	



Environmental Shield SPF 50	20ml/50ml	Main Ingredients	pH 7.5
<ul style="list-style-type: none"> <li>Protection against UV (SPF 50), IR and HEV</li> <li>Stops ROS formation</li> <li>Protection against pollution</li> </ul>		<ul style="list-style-type: none"> <li>Fused Ring Cyanoacrylate</li> <li>Environmental Shield Polymer</li> <li>65% Zinc Oxide Dispersion</li> </ul>	



Active Lotion	60ml	Main Ingredients	pH 3.5
<ul style="list-style-type: none"> <li>Exfoliation and renewal</li> <li>Improvement in skin texture</li> </ul>		<ul style="list-style-type: none"> <li>10% Amphoteric Triple AHA Complex</li> </ul>	



Active Gel	60ml	Main Ingredients	pH 3.5
<ul style="list-style-type: none"> <li>Exfoliation, reduction in surface oil</li> <li>Anti-inflammatory, anti-bacterial</li> <li>Improvement in skin texture</li> </ul>		<ul style="list-style-type: none"> <li>10% Triple AHA Complex</li> </ul>	



Alpha Lipoic Activator	30ml	Main Ingredients	pH 4.0
<ul style="list-style-type: none"> <li>Super anti-oxidant</li> <li>Reduces fine lines, tightening effect on sagging skin</li> <li>(Phase 2)</li> </ul>		<ul style="list-style-type: none"> <li>Alpha Lipoic Acid</li> <li>DMAE</li> </ul>	



Multi Rejuvenating Serum	30ml	Main Ingredients	pH 3.0
<ul style="list-style-type: none"> <li>Firms, smooth and hydrates skin</li> <li>Reduce appearance of fine lines and wrinkles and uneven skin tone</li> </ul>		<ul style="list-style-type: none"> <li>Vitamin C L Ascorbic Acid</li> <li>Palmitoyl Tripeptide - 3</li> </ul>	



Super Hydrating Serum	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Immediate hydration</li> <li>Barrier protection</li> <li>(Transitional period, phase 1)</li> </ul>		<ul style="list-style-type: none"> <li>Phytoprotect</li> <li>Hydrating Bio Complex</li> </ul>	



Stemplex Serum	30ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>Anti-wrinkle, firming, smoothing of skin</li> <li>Immediate tightening of skin</li> <li>(Phase 1)</li> </ul>		<ul style="list-style-type: none"> <li>Botanical Stem Cell Extract</li> <li>Pichia Resveratrol</li> </ul>	

# Environmentally Damaged Products



<b>Eye Treatment</b>	<b>15ml</b>	<b>Main Ingredients</b>	<b>pH 4.5</b>
<ul style="list-style-type: none"> <li>Reduces fine lines and wrinkles</li> <li>Improves skin texture, tone and colour</li> </ul>		<ul style="list-style-type: none"> <li>DMAE</li> <li>Palmitoyl Penta peptide-4</li> </ul>	



<b>Eye Serum</b>	<b>15ml</b>	<b>Main Ingredients</b>	<b>pH 4.5</b>
<ul style="list-style-type: none"> <li>For puffiness, bags, wrinkles and dark circles</li> <li>Draining action</li> </ul>		<ul style="list-style-type: none"> <li>Botanical Complex</li> </ul>	



<b>Anti-Ageing Eye Cream</b>	<b>15ml</b>	<b>Main Ingredients</b>	<b>pH 4.5</b>
<ul style="list-style-type: none"> <li>Energises tired skin</li> <li>Densifies dermis</li> <li>Plumping wrinkles</li> </ul>		<ul style="list-style-type: none"> <li>Cyclotetra-peptide-24</li> <li>Saccharomyces, Rhodeola Root and Betaine complex</li> </ul>	



<b>Rejuvenating Mask</b>	<b>60ml</b>	<b>Main Ingredients</b>	<b>pH 4.5</b>
<ul style="list-style-type: none"> <li>Reduces premature skin ageing</li> <li>Brighter, smoother, radiant and clear complexion</li> </ul>		<ul style="list-style-type: none"> <li>Alpha Lipoic Acid</li> <li>Vitamin C Ester</li> <li>Vitamin A Ester</li> </ul>	10min  1-2x per week



<b>Super Hydrating Mask</b>	<b>60ml</b>	<b>Main Ingredients</b>	<b>pH 4.5</b>
<ul style="list-style-type: none"> <li>Relieves dryness, dehydration and fine lines (transitional period)</li> </ul>		<ul style="list-style-type: none"> <li>Hydrating Bio-complex</li> </ul>	15min  1-2x per week



<b>Glyco Mask</b>	<b>10ml</b>	<b>Main Ingredients</b>	<b>pH 3.5</b>
<ul style="list-style-type: none"> <li>Exfoliating</li> <li>Tightening</li> <li>Reduces fine lines and wrinkles</li> </ul>		<ul style="list-style-type: none"> <li>Amphoteric Glycolic Acid</li> <li>Salicylic Acid</li> </ul>	10min only  1x per week



<b>Anti-Ageing Leave On Mask</b>	<b>60ml</b>	<b>Main Ingredients</b>	<b>pH 5.0</b>
<ul style="list-style-type: none"> <li>Reduces appearance of fine lines</li> <li>Plumps the skin</li> </ul>		<ul style="list-style-type: none"> <li>GGP</li> <li>Lindera Strychnifolia Root Extract</li> <li>Cyclotetra-peptide-24</li> </ul>	Leave on  1-2x per week



Skin Refirmer	50ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Reduces muscle contractions and wrinkle depth</li> <li>Reduces skin sagging and increases elasticity &amp; firmness</li> </ul>		<ul style="list-style-type: none"> <li>Polypeptide &amp; Tetrapeptide</li> <li>Octapeptide &amp; Hexapeptide</li> <li>Manilkara Multinervis</li> </ul>	



Pre & Post Serum	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Reduces effects of dry and dehydrated skin</li> <li>Rapid skin barrier repair with regulated transepidermal water loss</li> </ul>		<ul style="list-style-type: none"> <li>Isostearyl Isostearate</li> <li>Scientifically Balanced Moisturisation Complex (SBMC)</li> <li>Mirabilis Jalapa Extract</li> </ul>	



Nimue-TDS™ Environmentally Damaged Skin	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Anti-glycation effects</li> <li>Improves visible signs of skin fatigue and premature ageing</li> <li>Reduces skin slackening</li> </ul>		<ul style="list-style-type: none"> <li>Albizia Julibrissan Extract</li> <li>Isostearyl Isostearate</li> </ul>	



Nimue-TDS™ Interactive Skin	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Desensitises the skin</li> <li>Offers comfort to sensitive skin</li> <li>Reduces fine lines and wrinkles</li> </ul>		<ul style="list-style-type: none"> <li>Lipopeptide</li> <li>Mirabilis Jalapa Extract</li> <li>Isostearyl Isostearate</li> </ul>	



Pro Age Foundation	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Provides a smooth finish, softens and disguises lines and imperfections</li> <li>Lifting and tightening effect, long-lasting anti-ageing benefits</li> <li>Skin barrier and UVB protection</li> </ul>		<ul style="list-style-type: none"> <li>Ceramide 2</li> <li>Palmitoyl Hexapeptide-12</li> <li>Lifting Complex</li> </ul>	



# Advanced Ageing Technology - Nimue Age Intelligent

## Introduction

The Nimue Age Intelligent range is a prestigious, high performance range with a smart and futuristic treatment approach that taps into scientific advances and technologies to meet the needs of the skin. Intelligent age mechanisms are used which targets skin cells to reactivate skin's youth and influence skin health positively.

New scientific information and technologies has assisted us to better understand how skin works and in turn, support with the development of products that is age appropriate and formulated with intelligent active ingredients.

“OMICS”, the science of ageing studies, reveals that in addition to age, factors such as lifestyle, life story or environment and genetics have an impact on the visible signs of ageing.

The advanced skin formulations improve the effects of ageing and influence skin health positively. The unique hybrid delivery system used in the Age Intelligent range allows for penetration within the deeper layers of the skin to improve hydration, skin firmness, elasticity and wrinkle depth.



# Advanced Ageing Technology - Nimue Age Intelligent

## Concept of the Age Intelligent range

The OMICS Science for ageing studies the genetic changes in the skin that is influenced by an individual's chronological clock (age), lifestyle, life story and environment.

These factors cause functional and structural changes to the skin which are referred to as visible signs of ageing.

### OMICS

Refers to a field of study in biology ending in -omics, such as genomics, transcriptomics, proteomics or metabolomics. It is also a study of the various changes within the skin and to determine what these changes are and their causes.

The study of skin biology measures the influences and changes to the skin by focusing mainly on the ageing process. In this manner, much information relating to biology has been gathered and helps the markers that indicate certain types of ageing and which actives to develop that will minimise the effects thereof.

The studies are aimed at:-

- DNA - For a younger perceived skin to improve moisture content of the skin and to help with skin repair.
- Genes - For rebuilding the skin and improving the lifespan of skin cells, thereby improving wrinkles and decreasing the effect of glycation.
- Epigenome - For environmental control and improved cell communication to improve wrinkles and skin texture.

action on			benefits
DNA	Genes	OME	
■			<ul style="list-style-type: none"> <li>■ younger perceived age</li> <li>■ natural DNA repair</li> </ul>
	■		<ul style="list-style-type: none"> <li>■ longevity</li> <li>■ restructuring</li> </ul>
		■	<ul style="list-style-type: none"> <li>■ environmental control</li> <li>■ cell communication</li> </ul>

# Advanced Ageing Technology - Nimue Age Intelligent

## Concept of the Age Intelligent range

The Nimue research and development department looked at the main factors influencing skin health and ageing, other than the normal chronological ageing.

As we age, our fibroblasts start to produce less collagen and we start to see sagging and thinning of the skin. However, chronological ageing and genetics, or our gene pool, contributes to only 5% of our ageing.

It has been discovered that 95% of ageing is as a result of and influenced by lifestyle, our life story and the environment.

The pioneering OMICS research started by looking at the various signals in the skin that triggers the ageing process. Different negative lifestyle habits such as lack of sleep, poor diet, decreased water intake, cigarette smoke and stress as well as environmental factors such as overexposure to the sun, pollution and climate influences were considered.

Once we understood what signals are triggered by these factors, we became more 'age intelligent' from a formulating perspective and it enabled us to develop and launch the Nimue Age Intelligent products. The key focus was to develop a range that resulted in optimisation of skin health, anti-ageing benefits and overall improvement of skin appearance.

Nimue selected scientifically active molecules to support the skin when the ageing signals are triggered. Additionally, we need to empower our consumers to be more 'age intelligent' so that they are more aware of what contributes to the ageing process in terms of their lifestyle, life story and environment and how the Nimue Age Intelligent range of products can benefit the health of their skin.

Nimue moves into being a futuristic brand based more on science, efficacy, results and advanced skincare.

# Advanced Ageing Technology - Nimue Age Intelligent

## Target Market

- Environmentally damaged and mature, ageing skin
- Dryness and dehydration
- Wrinkles
- Loss of elasticity
- Sagging skin

## Features

- Ingredient delivery performance
- Natural DNA protection and repair for cell longevity
- Restructuring effect on the skin
- Environmental control
- De-glycation
- Cell communication
- Deep skin hydration and barrier repair
- Prevents carbamylation (process responsible for collagen 1 degradation)


## Key Benefits

- Decreases wrinkle depth
- Improves skin texture and surface uniformity
- Lifting effect on a sagging skin
- Increase in skin elasticity and firmness
- Improves skin luminosity, smoothness and softness
- Improves quality of structural protein - collagen 1

The Nimue Age Intelligent products targets specific aspects of skin cells more effectively and offers advanced protection against the environment. It repairs the skin and keeps skin younger for longer. The range is in line with Nimue's philosophy, which places specific focus on treating the cause and reducing the symptoms of ageing skin.

# Advanced Ageing Technology - Nimue Age Intelligent

## AI Active Ingredients

Molecules isolated from Phytochemicals		
ACTIVE INGREDIENT	KEY FUNCTION	BENEFITS
<p><b>Chicory Root Extract</b></p> 	<p>Repair and moisturisation</p>	<ul style="list-style-type: none"> <li>■ Younger perceived age and repair</li> <li>■ Acts like Vitamin D, restoring the function of Vitamin D receptors</li> <li>■ Stimulates the gene network that controls epidermal cell differentiation, keratinisation and desquamation</li> <li>■ Enables mature skin to regain a functional barrier more rapidly</li> </ul>

### OMICS Science for Ageing

Study of the effects on the DNA influenced by lifestyle and life story



DNA is affected by limited sun exposure resulting in less Vitamin D production




We require an active that will result in a younger perceived age and natural repair of DNA



Result is higher levels of Vitamin D and repair of skin barrier


# Advanced Ageing Technology - Nimue Age Intelligent

## AI Active Ingredients

Molecules isolated from Phytochemicals		
ACTIVE INGREDIENT	KEY FUNCTION	BENEFITS
<p><b>Hydrolised Myrtle Leaf Extract</b></p> 	Cellular longevity and restructuring	<ul style="list-style-type: none"> <li>■ Preserves skin youthfulness</li> <li>■ Cellular longevity and restructuring</li> <li>■ Inhibits skin ageing signs</li> <li>■ Increases cell to cell communication for cellular longevity</li> <li>■ Inhibits the glycation of collagen, preventing rigidity of dermal tissue</li> <li>■ Reduces the number and length of wrinkles</li> </ul>
<p>OMICS Science for Ageing</p> <p>Study of the changes in the genes caused by glycation</p> <p style="text-align: center;">↓</p> <p>This causes wrinkles and reduced cell to cell communication</p> <p style="text-align: center;">↓</p> <p>We require an active that will limit the effects of glycation to provide cell longevity and restructuring</p> <p style="text-align: center;">↓</p> <p>Result is preserving skin youthfulness</p>		

# Advanced Ageing Technology - Nimue Age Intelligent

## AI Active Ingredients

Molecules isolated from Phytochemicals		
ACTIVE INGREDIENT	KEY FUNCTION	BENEFITS
<p><b>Calendula Flower Extract</b></p> 	Anti-wrinkle benefits	<ul style="list-style-type: none"> <li>■ Environmental control and cell communication</li> <li>■ Revitalises the epigenome</li> <li>■ Limits age-related modifications</li> <li>■ Combats the harmful effect of ageing due to environmental factors</li> <li>■ Increases skin elasticity and tone</li> <li>■ Smooths skin micro relief</li> <li>■ Improves skin surface uniformity and texture</li> </ul>

### OMICS Science for Ageing

Study of the changes happening in the epigenome caused by environmental factors



This causes loss of elasticity and skin tone



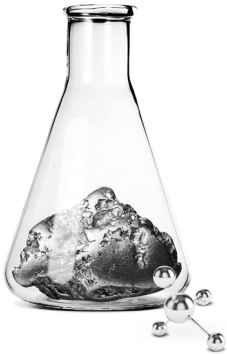

We require an active that will control the environmental factors



Result is increased skin elasticity, smoother skin, collagen synthesis

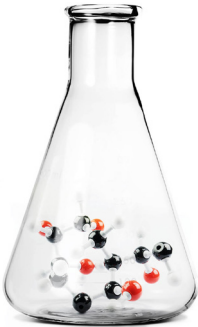


# Advanced Ageing Technology - Nimue Age Intelligent

## AI Active Ingredients

Anti-ageing Actives		
ACTIVE INGREDIENT	KEY FUNCTION	BENEFITS
<p><b>Colloidal Platinum and Acetyl Tetra-Peptide-17</b></p> 	<p>Anti-wrinkle and anti-ageing benefits</p>	<ul style="list-style-type: none"> <li>■ Collagen booster peptides conjugated to Platinum</li> <li>■ The synergy of peptides together with platinum allows for peptide selectivity and activity, peptide stability and bio-availability and enables a high peptide concentration</li> <li>■ Tetra-peptide Complex consists of the following:               <ul style="list-style-type: none"> <li>- Hydroxyproline</li> <li>- Arginine Polypeptide</li> <li>- Lysine Polypeptide</li> </ul> </li> <li>■ Reduces wrinkle appearance</li> <li>■ Increases collagen and elastin</li> <li>■ Increases elasticity short and long term</li> <li>■ Improves hydration</li> </ul>
<p><b>Albizia Julibrissan Extract (In AI Face Serum only)</b></p> 	<p>Protects and repairs</p>	<ul style="list-style-type: none"> <li>■ Detoxifies the skin of glycotoxins, therefore protects and repairs protein structures damaged by glycation</li> <li>■ Fights against the visible signs of fatigue such as a dull complexion, sagging, loss of firmness</li> <li>■ Optimises cellular energy resulting in a refreshed skin</li> </ul>

# Advanced Ageing Technology - Nimue Age Intelligent

## AI Active Ingredients

Anti-ageing Actives		
ACTIVE INGREDIENT	KEY FUNCTION	BENEFITS
<p><b>Acetylated Glucuronic Acid</b> <i>(In AI Face Serum only)</i></p> 	<p>Wrinkle smoothing and moisturisation</p>	<ul style="list-style-type: none"> <li>Restores and maintains optimal hyaluronic acid renewal</li> <li>Increases moisturisation on the skin surface and within the skin</li> <li>Stimulates elastin synthesis increasing skin suppleness, elasticity, flexibility and resistance</li> </ul>
<p><b>Sorghum Bicolour Stalk Juice</b> <i>(In AI Eye Serum only)</i></p> 	<p>Immediate skin tightening</p>	<ul style="list-style-type: none"> <li>Forms a stretching film on the skin to provide an immediate and durable tightening effect, resulting in a micro lifting and smoothing effect on the skin.</li> <li>Smooths the skin surface</li> </ul>
<p><b>Shiitake Mushroom Based Extract</b> <i>(In AI Neck &amp; Décolleté Cream only)</i></p> 	<p>Immediate skin firmness and tightening in neck and décolleté area.</p>	<ul style="list-style-type: none"> <li>Prevents carbamylation - the process responsible for collagen 1 degradation.</li> <li>Provides tissue structure and strength for maximum skin firmness and tightening of the neck and décolleté area.</li> <li>Smoother, firmer complexion</li> </ul>

# Advanced Ageing Technology - Nimue Age Intelligent

## AI Delivery System

With the selection of the ingredients used within the Nimue Age Intelligent Range, a unique **Hybrid Delivery System** has been chosen to deliver these actives effectively into the skin and is able to drive greater levels of active ingredient performance.

It is called a Hybrid Delivery System due to the following reasons:-

- It improves the stability of the actives
- It reduces irritation potential
- It allows for an even distribution of actives into the skin
- It allows for the actives to penetrate through the barrier of the skin, thereby ensuring the actives reach their target site
- It allows for a deeper penetration of actives

Hybrid Delivery System		
DELIVERY SYSTEM	KEY FUNCTION	BENEFITS
Polarised Water	Even distribution of actives	<ul style="list-style-type: none"> <li>■ Allows for a more even distribution of actives over the surface of the skin, ensuring a more even penetration and consistent result</li> <li>■ Polarised Water allows for clusters to be smaller so that water through the cell walls are improved</li> <li>■ Higher levels of water in the skin will result in a healthier skin barrier</li> <li>■ Hydration is provided at three levels:                             <ul style="list-style-type: none"> <li>- Deep dimension - water absorption is increased through the cell walls</li> <li>- Intermediate dimension - water is transported to the deeper layers of the skin</li> <li>- Surface dimension - phospholipids provides lipids to the stratum corneum</li> </ul> </li> </ul>

# Advanced Ageing Technology - Nimue Age Intelligent

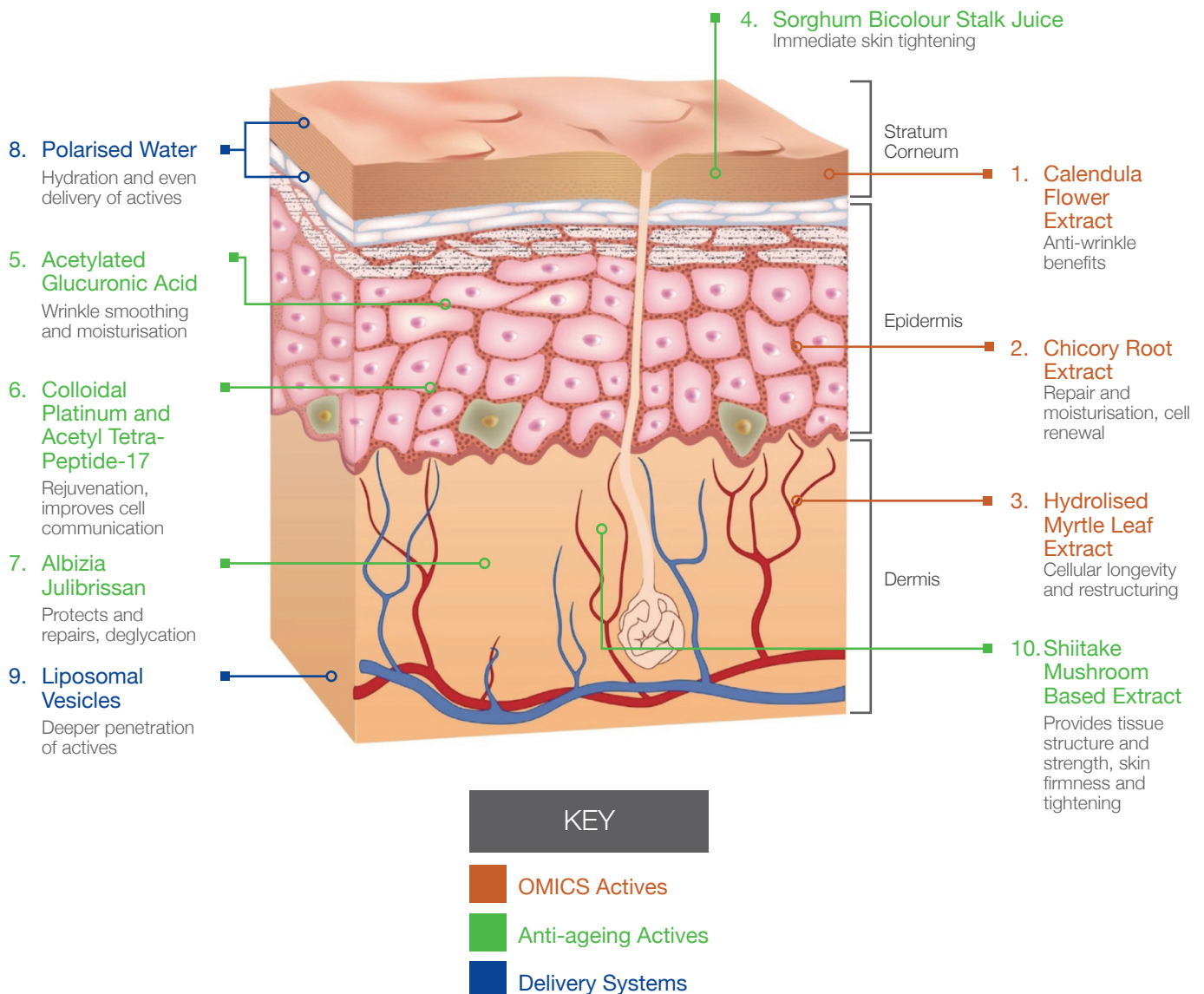
## AI Delivery System

Hybrid Delivery System		
DELIVERY SYSTEM	KEY FUNCTION	BENEFITS
Liposomal Vesicles	Deeper delivery of actives	<ul style="list-style-type: none"> <li>■ Based on Polyphenols obtained from Camellia Sinensis</li> <li>■ A new liposome technology that enables the delivery of greater levels of active ingredients into the deeper layers of the skin</li> <li>■ The Liposomal Vesicles are able to misshape as it enters into the skin to effectively penetrate and then reshape once it is through the skin barrier, releasing the actives</li> <li>■ Ensures stability and sustained bio-availability of active ingredients into the skin</li> <li>■ Reduces irritation potential</li> </ul>

# Advanced Ageing Technology - Nimue Age Intelligent

## Ingredient overview

1. Calendula Flower Extract
2. Chicory Root Extract
3. Hydrolised Myrtle Leaf Extract
4. Sorghum Bicolour Stalk Juice
5. Acetylated Glucuronic Acid
6. Colloidal Platinum and Acetyl Tetra-Peptide-17
7. Albizia Julibrissan
8. Polarised Water
9. Liposomal Vesicles
10. Shiitake Mushroom Based Extract





AI Cleansing Cream	100ml	Main Ingredients	pH 6.0
<ul style="list-style-type: none"> <li>■ Gentle removal of make up, pollutants and daily impurities</li> <li>■ Lightly exfoliates the skin</li> <li>■ Skin barrier repair</li> </ul>		<ul style="list-style-type: none"> <li>■ Stabilised Papain</li> <li>■ Isostearyl Isostearate</li> <li>■ Polarised Water</li> </ul>	



AI Day Cream	50ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>■ Reduces fine lines and wrinkles</li> <li>■ Lifting and firming</li> <li>■ Reduces skin fatigue and uneven skin tone</li> </ul>		<ul style="list-style-type: none"> <li>■ OMICS based actives</li> <li>■ Colloidal Platinum &amp; Acetyl Tetra-Peptide-17</li> <li>■ Hybrid Delivery System</li> </ul>	



AI Night Cream	50ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>■ Reduces fine lines and wrinkles</li> <li>■ Provides superior sensorial aspects</li> <li>■ Reduces skin fatigue and uneven skin tone</li> </ul>		<ul style="list-style-type: none"> <li>■ OMICS based actives</li> <li>■ Colloidal Platinum &amp; Acetyl Tetra-Peptide-17</li> <li>■ Hybrid Delivery System</li> </ul>	



AI Face Serum	30ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>■ Increases skin elasticity</li> <li>■ Decreases wrinkle depth</li> <li>■ Assists in restructuring the skin layers</li> </ul>		<ul style="list-style-type: none"> <li>■ OMICS based actives</li> <li>■ Albizia Julibrissan Extract</li> <li>■ Acetylated Glucuronic Acid</li> </ul>	

# Age Intelligent - Retail Range



AI Eye Serum	15ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>■ Nourishes, tightens and lifts the skin around the eyes</li> <li>■ Assists with puffiness and dark circles</li> <li>■ Hydrates the skin</li> </ul>		<ul style="list-style-type: none"> <li>■ OMICS based actives</li> <li>■ Colloidal Platinum &amp; Acetyl Tetra-Peptide-17</li> <li>■ Sorghum Bicolour Stalk Juice</li> </ul>	



AI Neck & Décolleté Cream	50ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>■ Increases skin elasticity and improves skin firmness</li> <li>■ Decreases carbamylation process</li> <li>■ Assists in restructuring the skin layers</li> </ul>		<ul style="list-style-type: none"> <li>■ OMICS based actives</li> <li>■ Shiitake Mushroom based Extract</li> <li>■ Hybrid Delivery System</li> </ul>	

# Advanced Ageing Technology - Nimue Age Intelligent

## Independent Clinical Studies

Clinical testing on the individual Nimue Age Intelligent products were performed by an international independent laboratory. The products were tested by 20 volunteers over a period of 28 days.

The below are the results from the clinical testing:-

### Nimue AI Day Cream

#### Hydration

- 97% increase in hydration after 14 days and 95% after 28 days
- 100% of volunteers showed a significant increase in the hydration of their skin

#### Skin Firmness

- 84% increase in skin firmness after 14 days and 86% after 28 days
- 75% of volunteers showed a significant increase in skin firmness

#### Skin Elasticity

- 75% increase in skin elasticity after 14 days and 86% after 28 days
- 85% of volunteers showed a significant increase in skin elasticity

#### Wrinkle Depth

- 75% decrease in skin elasticity after 14 days
- 85% of volunteers noticed a significant decrease in wrinkle depth

### Nimue AI Night Cream

#### Hydration

- 97% increase in hydration after 14 days and 95% after 28 days
- 100% of volunteers showed a significant increase in the hydration of their skin

#### Skin Firmness

- 89% increase in skin firmness after 14 days and 88% after 28 days
- 85% of volunteers noticed a significant increase in skin firmness

#### Skin Elasticity

- 75% increase in skin elasticity after 14 days and 66% after 28 days
- 75% of volunteers noticed a significant increase in skin elasticity

#### Wrinkle Depth

- 59% decrease in wrinkle depth in 14 days
- 85% of volunteers noticed a significant decrease in wrinkle depth

# Advanced Ageing Technology - Nimue Age Intelligent

## Independent Clinical Studies

### Nimue AI Face Serum

#### Hydration

- 99% increase in hydration after 14 days and 95% after 28 days
- 100% of volunteers showed a significant increase in the hydration of their skin

#### Skin Firmness

- 87% increase in skin firmness after 14 days and 88% after 28 days
- 95% of volunteers noticed a significant increase in skin firmness

#### Skin Elasticity

- 75% increase in skin elasticity after 14 days and 99% after 28 days
- 80% of volunteers noticed a significant increase in skin elasticity

#### Wrinkle Depth

- 32% decrease in wrinkle depth in 14 days
- 100% of volunteers noticed a significant decrease in wrinkle depth

### Nimue AI Eye Serum

#### Hydration

- 99% increase in hydration after 14 days and 95% after 28 days
- 100% of volunteers showed a significant increase in the hydration of their skin

#### Skin Firmness

- 81% increase in skin firmness after 14 days and 89% after 28 days
- 95% of volunteers noticed a significant increase in skin firmness

#### Skin Elasticity

- 80% increase in skin elasticity after 14 days and 99% after 28 days
- 90% of volunteers noticed a significant increase in skin elasticity

#### Wrinkle Depth, Volume and Wrinkle Area

- 53% decrease in wrinkle depth in 14 days
- 95% of volunteers noticed a significant decrease in wrinkle depth
- 50% decrease in wrinkle volume in 14 days
- 85% of volunteers noticed a significant decrease in wrinkle volume
- 55% decrease in total wrinkle area

# Advanced Ageing Technology - Nimue Age Intelligent

## Independent Clinical Studies

### Nimue AI Neck & Décolleté Cream\*

#### Skin Firmness and Elasticity

- 50% increase in skin firmness after 14 days
- 60% increase in skin elasticity after 14 days
- 85% of volunteers showed a significant increase in skin firmness and elasticity

#### Skin Roughness

- 30% increase in skin smoothness after 14 days
- 90% of volunteers showed a significant increase in skin smoothness

\* *Clinical trials conducted in an independent clinical efficacy laboratory on 20 female volunteers between the ages of 35 and 63. Twice daily application, for 28 days, to the neck and décolleté area.*

# Advanced Ageing Technology - Nimue Age Intelligent

## Integration of Nimue Products

The overall benefits of the Nimue Age Intelligent range are to achieve a younger perceived age and to improve the effects of ageing.

\* For optimum results, it is recommended that the Nimue Age Intelligent range be used in synergy as a system.

The following products may be integrated from the existing Nimue range:

- Nimue Eye Make Up Remover
- Nimue Conditioner / Nimue Conditioner Lite (optional)
- Nimue Pre & Post Serum
- Nimue Exfoliating Enzyme
- Nimue SPF 40 / Nimue Environmental Shield SPF 50
- Nimue Super Hydrating Mask
- Nimue Anti-Ageing Leave On Mask



\* Recommended to still adopt a slow and gradual approach when introducing AHA's in the phase system in conjunction with AI products.

*This is due to the high percentage of active ingredients in AI.*

i n d e x

section **3**

**Hyperpigmented Skin**

Part **1**

Introduction to Hyperpigmented Skin

Part **2**

Development of Hyperpigmented Skin

Part **3**

Causes of Hyperpigmented Skin

Part **4**

Types of Pigmentation Disorders

Part **5**

Retail Hyperpigmented Ingredients and Products



# Introduction to Hyperpigmented Skin

## Introduction

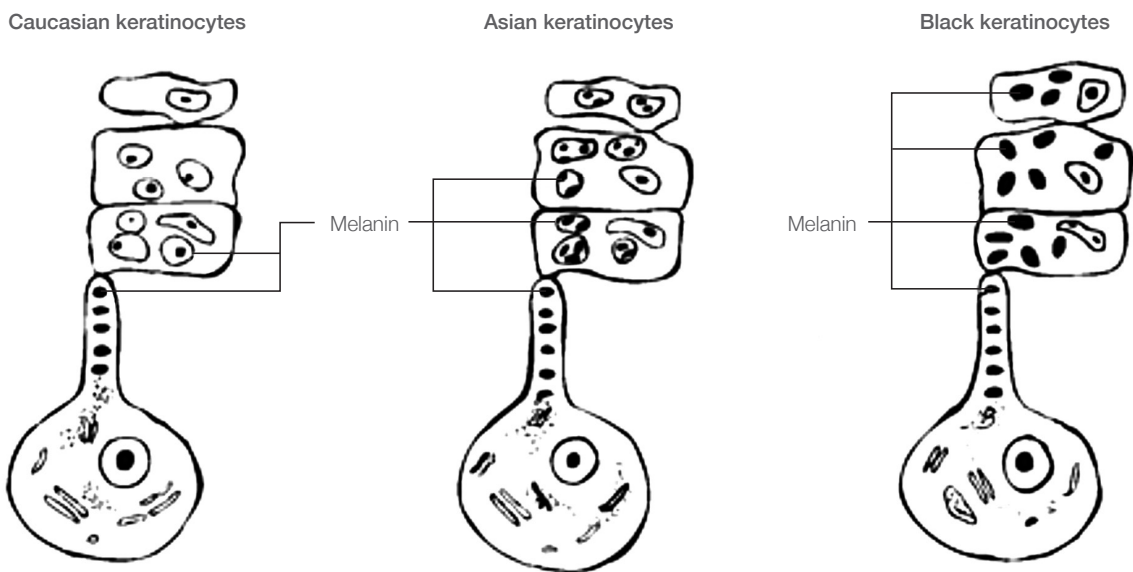
Hyperpigmentation is the most difficult of all the skin classifications to treat and maintain. In order to maintain the results, it requires a long-term commitment from the client to be vigilant with the products. Before treating any pigmentation disorders, it is important to have a full understanding as to what causes the condition.

Hyperpigmentation is the result of the skin trying to protect itself from potential harm resulting in an uneven skin colour. In order to achieve any results in the treatment of hyperpigmentation, the triggering potential harm factor needs to be eliminated so that the skin no longer needs to be on alert.

Firstly, we need to understand what we mean by the term 'skin colour'.

## Skin Colour

Skin colour is one of the most conspicuous ways in which humans vary and has been widely used to define human races. When looking at the differences in skin colour it is important to know that all ethnicities have the same number of melanocytes. It's the density of the melanin, distribution and concentration which results in variation in skin colour.



Not only is the skin colour different, but the tone of the skin can also vary between red, yellow, blue or brown:

- Red is oxygen rich blood due to haemoglobin (blood pigment) which is found in the red blood cells
- Yellow is due to the carotenoids (beta-carotene)
- Blue is due to the haemoglobin which is found in the deoxygenated blood in the veins
- Brown is the presence of melanin

# Introduction to Hyperpigmented Skin

Understanding people's colour and tone can affect the way in which people react to the sun and how the skin can be treated with peels and laser. There are two types of skin colour that we have:

## Constitutive skin colour

This is the skin colour that is the natural, genetically determined colour of the epidermis. It is not influenced by ultraviolet (UV) light or hormone exposure. Typically, it's seen in areas of little or no sun exposure, such as the inner arm.

## Facultative skin colour

This is the result of exposure to UV light and other environmental factors. Tanning, for instance, changes the composition of melanin in the skin and increases the amount and size of melanin produced by melanocytes. Thus, facultative skin is darker than constitutive skin.

## Modern classification of skin colour

The Fitzpatrick Scale was developed in 1975 by Harvard Medical School dermatologist, Thomas Fitzpatrick, MD, PhD. This scale classifies a person's complexion and their tolerance to sunlight. It also measures several components: genetic disposition, reaction to sun exposure and tanning habits. It may be used to determine how someone will respond or react to facial treatments, and how likely they are to get skin cancer.

Skin photo type	Colour	Skin response to sun exposure
1 (i)	Caucasian - very fair skin colour, blond or red hair, freckles and blue eyes	Always burns easily, never tans
2 (ii)	Caucasian - fair skin colour, blond or light brown hair, freckles and blue or green eyes	Usually burns easily, tans with difficulty
3 (iii)	Darker Caucasian - light olive skin colour, dark hair, brown or green eyes	Burns moderately, tans gradually
4 (iv)	Mediterranean - dark olive skin colour, usually dark hair and brown eyes	Rarely burns, always tans well; medium skin tone
5 (v)	Middle Eastern, Latin, Indian - brown to dark in colour usually dark hair and brown eyes	Very rarely burns, tans very easily
6 (vi)	Dark skinned black - dark hair and brown eyes	Never burns

# Development of Hyperpigmented Skin

## Melanin

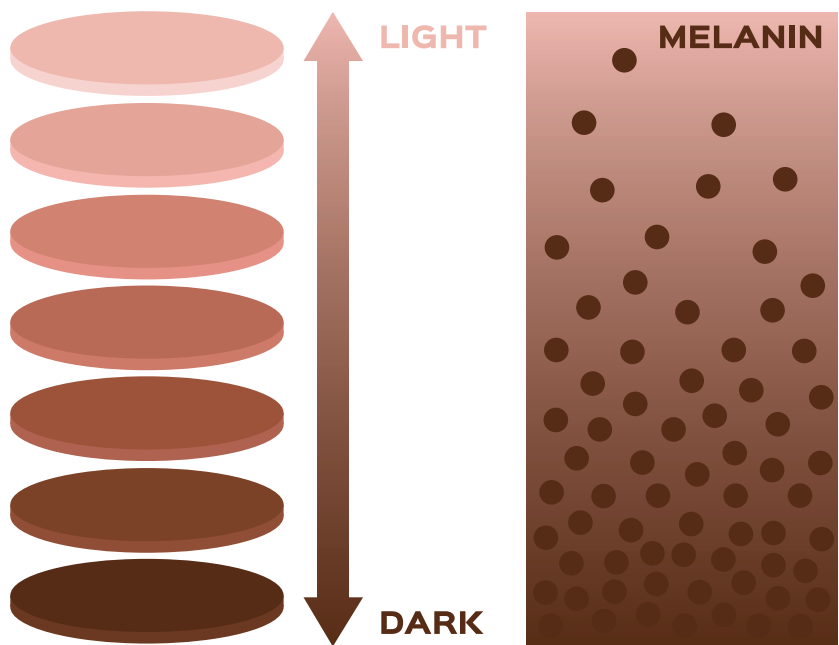
The word melanin originates for the Greek word Melas meaning “black”.

The definition of melanin is: an insoluble pigment that accounts for the colour of skin.

Pigment is a general term for one of a large group of materials that selectively absorbs or reflects certain wavelengths or colours of light.

Melanin is sometimes referred to as a chemical because it is formed as part of the process of metabolizing an amino acid called tyrosine. In the skin, melanin is formed by cells called melanocytes which are situated in the stratum germinativum of the skin, melanosomes are deposited into the keratinocytes in the stratum spinosum and it will take 3 weeks for the melanin to move into the stratum corneum.

The main reason for melanin in the skin is the protection against the UV radiation. Light carries energy and when it penetrates the skin, the energy is either absorbed or neutralized by melanin to prevent damage and the production of free radicals.



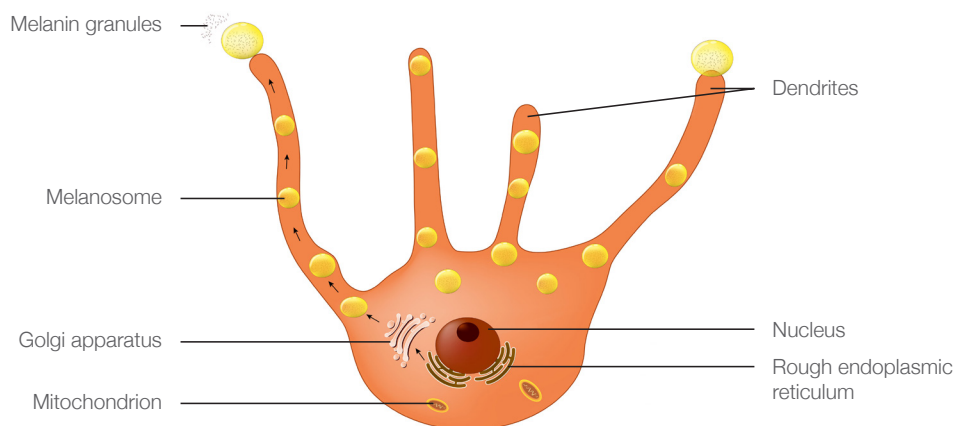
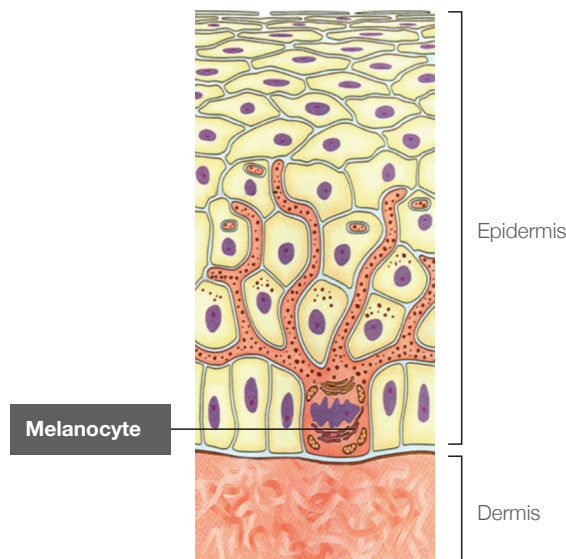
# Development of Hyperpigmented Skin

## Melanocyte

A melanocyte is a pigment-producing cell. The melanocyte has an octopus-like appearance that consists of a cell body which is located in the stratum germinativum and has dendrites, finger like projections that extend into the stratum spinosum.

There is a ratio of about 1:4 - 1:10 melanocytes to keratinocytes. 1 in every 10 cells in the basal layer is a melanocyte. It is estimated that one melanocyte will provide pigment for up to 30 to 40 keratinocytes. The association of the melanocyte and keratinocyte has been termed the epidermal melanin unit.

Within the melanocyte there is an enzyme called tyrosinase and organelles called melanosomes, which is where melanin is produced. Tyrosinase triggers the synthesis of melanin in the melanosome.



# Development of Hyperpigmented Skin

## Melanosomes

Melanosomes are the cellular site of synthesis, storage and transport of melanin pigments. They are tiny round pods with little threads in them. The melanin pigment is deposited on these threads. At this point the melanin is almost colourless.

The premelanosome contain tyrosine which stimulates the production and synthesis of melanin whereas the mature melanosomes are filled with melanin and will move into keratinocytes.

When melanosomes move into the keratinocytes they are almost colourless.

### Maturation of melanosomes:

#### Stage 1

- Found in the melanocyte
- Contain tyrosine but no tyrosinase therefore there is no melanin present

#### Stage 2

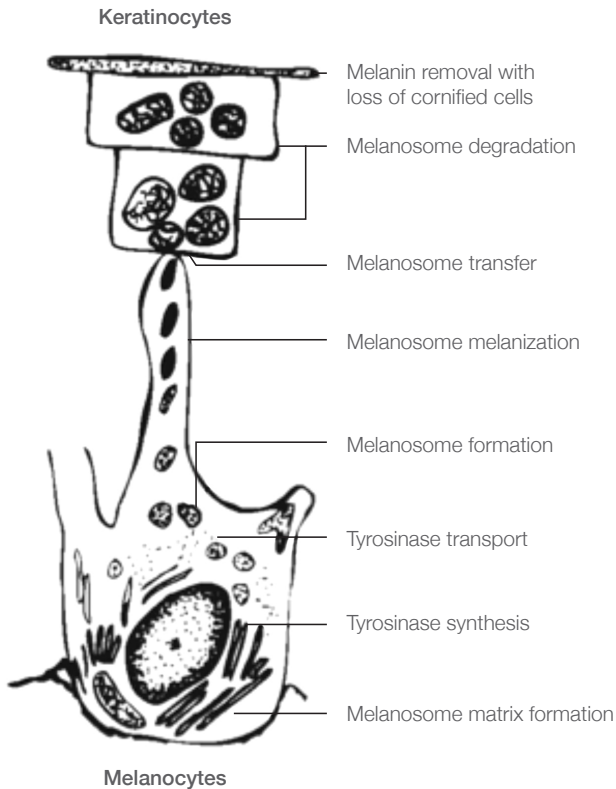
- Tyrosinase is now present, melanosome becomes elongated
- Contains little melanin

#### Stage 3

- Melanin synthesis now occurs
- The melanosomes move up the dendrites
- Melanosomes are now in the keratinocytes

#### Stage 4

- Fully pigmented
- Not much tyrosinase activity anymore



# Development of Hyperpigmented Skin

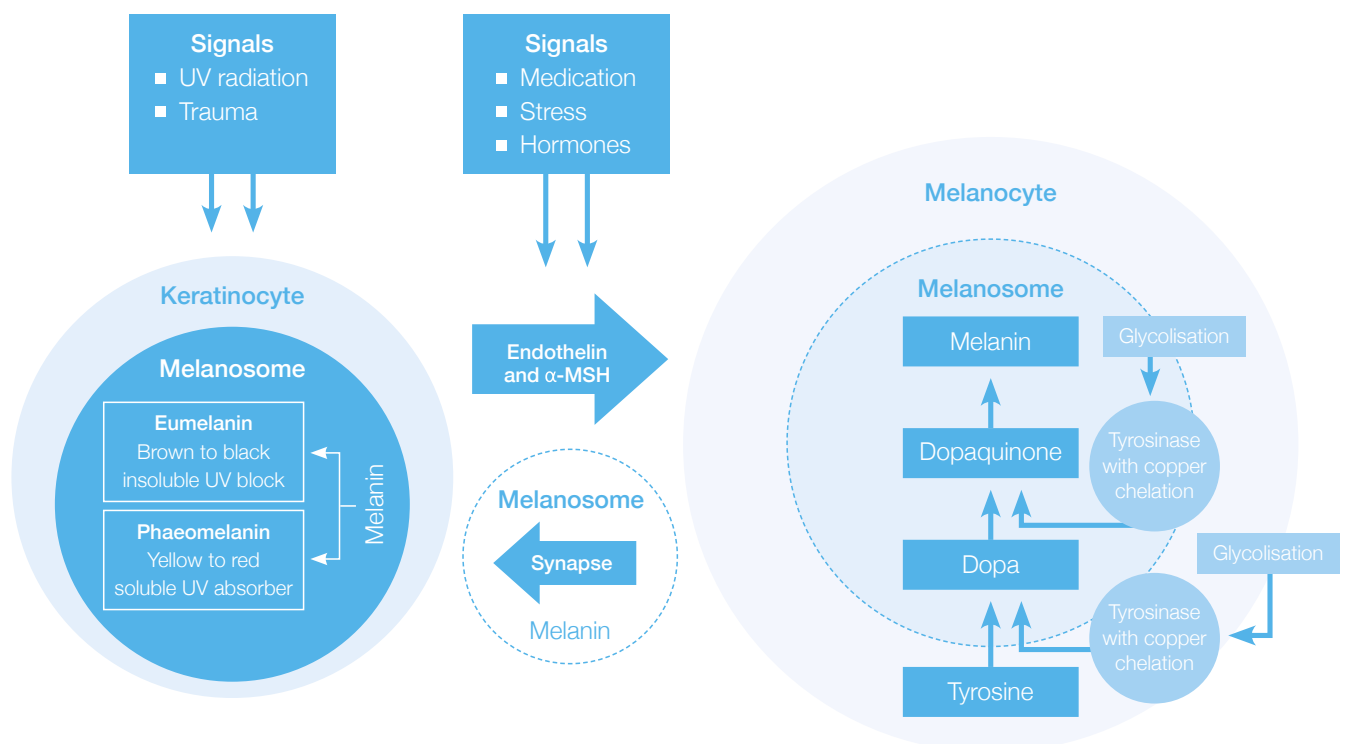
## Process of Melanogenesis

Melanogenesis is the process of melanin production in living cells:

- When the skin is assaulted by UV radiation or other trigger factors that creates a signal within the skin, an interesting and complex series of chemical reactions occur.

It begins with the keratinocytes calling for help from the melanocytes for protection. They do this by producing endothelin and a protein called Proopiomelanocortin (POMC), which stimulate the pituitary gland. The hormone, alpha-Melanin Stimulating Hormone ( $\alpha$ -MSH) is then secreted. Once endothelin and  $\alpha$ -MSH binds with their receptors, the melanocyte is prompted to begin the process of Melanogenesis.

- The enzyme tyrosinase is a catalyst of the reaction of amino acid tyrosine and the production of premelanosomes within the melanocyte. Tyrosinase needs to be activated by a process called glycosylation (the adding of a sugar). Copper is necessary for tyrosinase actions to occur.
- Within the melanosome, pigment granules of melanin are synthesized by the amino acid tyrosine through the actions of the enzyme tyrosinase and the metabolite L-Dopa and Dopa-quinone which are also building blocks for melanin production.
- The pigment granules are stored within the melanosomes. As the melanosomes mature, they move up the dendrites of the melanocytes. Once they reach the tip of the dendrite, a synapse occurs and the melanosome moves across into the keratinocytes.
- In the keratinocyte, the melanosome settles over the nucleus in order to protect the DNA of the cell. The melanosome now becomes darker and visible as melanin: the more the skin is exposed to UV rays the darker the melanin will become.



# Development of Hyperpigmented Skin

## Two types of Melanin Pigments present in the Skin

### Pheomelanin

- Red in colour
- Makes the skin responsive to the harmful effect of UV light
- More visible in lighter skin individuals
- Smaller and less elastic melanin plates compared to eumelanin

### Eumelanin

- Dark brown in colour
- The most protective against UV radiation
- Absorbs energy of visual and UV light without becoming a free radical
- More visible in darker skin individuals
- Bigger and more elastic melanin plates compared to pheomelanin

Skin photo type					
i	ii	iii	iv	v	vi
Always burns	Usually burns	Burns moderately	Rarely burns	Very rarely burns	Never burns
Never tans	Tan less than average (with difficulty)	Tans gradually	Tans well	Tans very easily	

Pheomelanin

Eumelanin



# Development of Hyperpigmented Skin

## Differences in Skin Colouration

The actual quantity of melanocytes does not differ between a lighter or darker skinned individual, but it is the quantity of the melanin that is produced and the type of melanin pigment that may differ. The melanosome arrangement and shape may also differ.

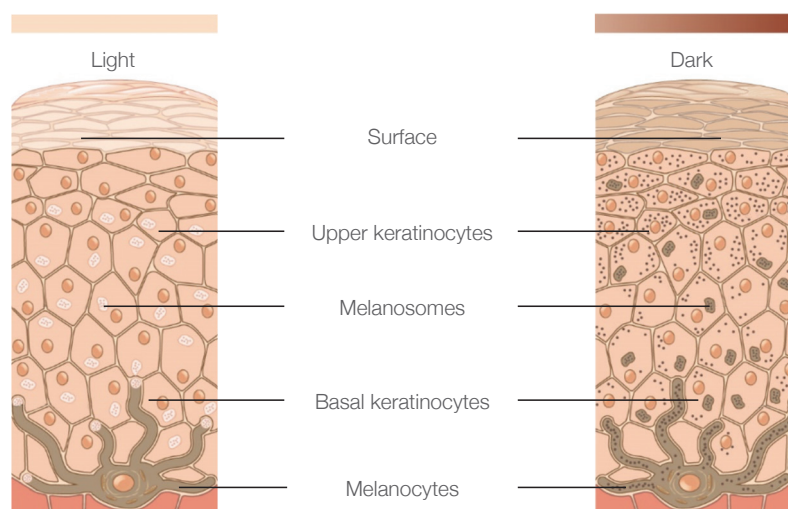
Depending on the Fitzpatrick skin classification, most individuals will have a mixture of the 2 types of melanin but generally, pheomelanin will be more present in a lighter skin and eumelanin will be more present in a darker skin.

### Lighter Skin

- More pheomelanin present
- Melanosomes are grouped together in complexes
- Degrades as it moves up the epidermal layers
- Less prone to hyperpigmentation

### Darker Skin

- More eumelanin present
- Melanosomes are more numerous, larger and individually dispersed
- Degrades slowly and still visible in stratum corneum
- More prone to hyperpigmentation due to higher levels of eumelanin and higher concentration of melanin in the skin



Pheomelanin

Eumelanin

# Causes of Hyperpigmented Skin

The melanocytes in the basal layer of the skin form part of the skin's natural mechanism of protection. Through the production of melanin, the skin is able to protect itself to a certain degree against the harmful effects of the environment, specifically that of solar radiation.

When over-stimulated, the melanocytes produce excess melanin through the process of melanogenesis, thus resulting in hyperpigmentation. As the melanocyte cell is highly sensitive to stimulation, any causative factor may be responsible for this over production of melanin.

Thus, treatment for hyperpigmentation needs to be slow and progressive so as to not over-stimulate the melanocyte cell.

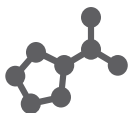
The following are the key factors responsible for the development of hyperpigmentation:-



UV Radiation



Medication



Hormone Imbalance



Stress



Trauma

# Causes of Hyperpigmented Skin



## UV Radiation

All energies that move at the speed of light are collectively referred to as electromagnetic radiation or 'light'. Light varies in wavelength, frequency and energy.

### UVA

- It ranges between 320 and 400 nm - longest rays, penetrating to a depth of  $\pm 1$  mm
- Penetrates deeply into the skin and has an effect on the dermis
- The tanning reaction is both the immediate pigment darkening and the delayed pigment darkening causing new melanogenesis.

Effects of UVA on the skin

- Causes ageing
- Damages the melanocytes caused by DNA damage
- Excess keratinisation
- DNA damage and inhibition of DNA synthesis

### UVB

- It ranges between 290 and 320 nm - middle rays
- Penetrates more superficially into the skin and has an effect on the epidermis

Effects of UVB on the skin

- Causes sunburn
- Causes erythema, redness and burning in the skin
- UVB is a major factor in the formation of skin cancer and its pre-stages as it directly damages the genetic substances of the skin cells.

### UVC

- Ranges between 150 and 300 nm - shortest rays
- The ozone layer absorbs 97% of the UV rays

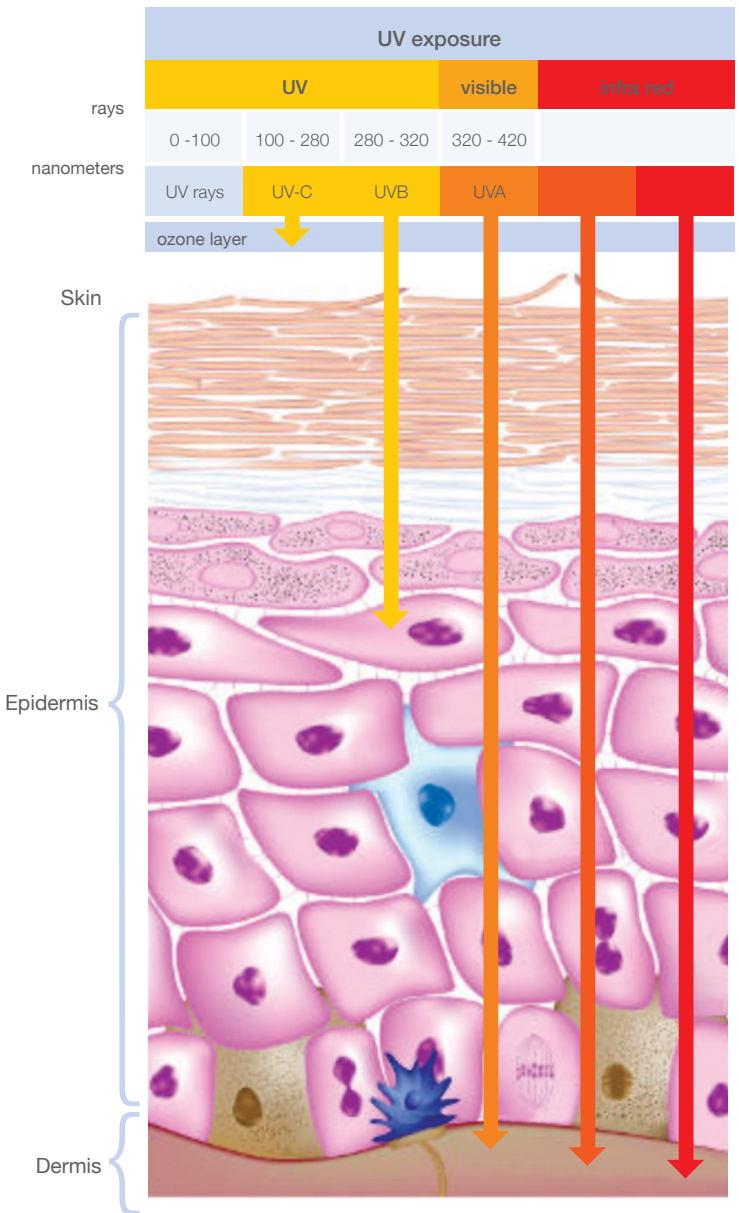
Effects of UVC on the skin

- Causes cancer

# Causes of Hyperpigmented Skin



## UV Radiation - continued



### UV Effect on Melanocytes

As melanin production is a protective mechanism, overexposure to solar radiation will encourage overproduction of melanin. The UV rays also damage the DNA of the melanocytes causing them to disperse melanin irregularly throughout the skin resulting in the formation of irregular pigmentation.

UV radiation acts as a direct stimulant to the melanocyte's tyrosinase enzyme to produce melanin. Sun-induced discoloration already begins in the early 20's and continually worsens as the skin ages. Hyperpigmentation may appear gradually, especially in women, after years of sun exposure. A very common sign of overexposure to solar radiation are freckles.

# Causes of Hyperpigmented Skin



## UV Radiation - continued

There are 2 pigment darkening reactions that occur when the skin is exposed to UV radiation:

### Immediate Pigmentation Darkening

- Occurs rapidly after exposure to UVA
- The pigment produced is ashy or grayish brown
- Immediate pigmentation can be produced by an afternoon in natural sun, or by the UVA radiation used in tanning studios

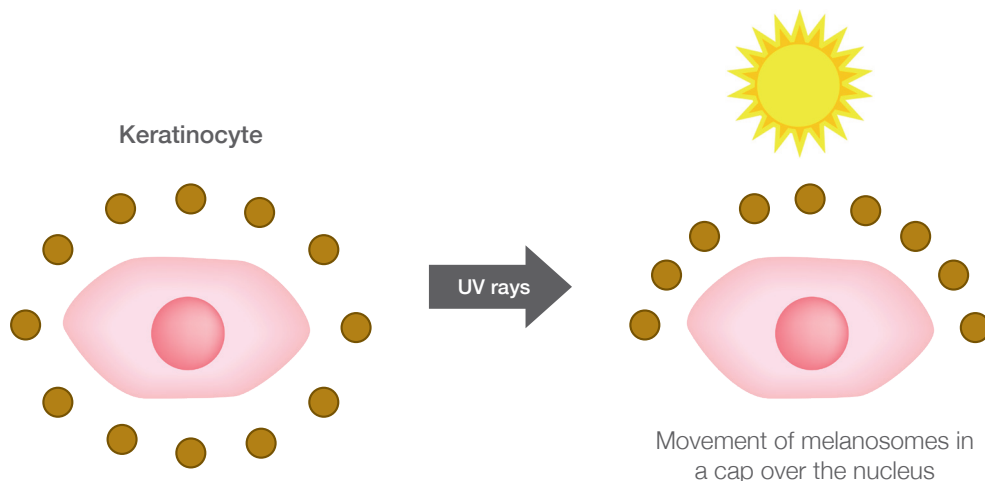
### Late Pigmentation Darkening

- Appears 24 - 72 hours after UV radiation exposure
- The pigmentation colouring has turned a coffee brown colour and will last for days or weeks
- There is a required dosage for late pigmentation

### Tanning

A tan is a scar that develops due to the chemical reaction that occurs in the body and is the skin's way of protecting itself from the damaging UV rays.

When the skin is exposed to the UV rays, the melanosomes become darker and form a cap over the nucleus in order to protect the DNA of the cell.



### Sunbeds - UVA

The UV spectrum of most sunbeds does not cause erythema, however there is still damage being caused at a cellular level and for some individuals, this can lead to melanomas and skin cancers. There is a belief that sunbeds are safer than the sun - this is not true.

One session's exposure to the UV radiation from a sunbed is equivalent to 2 full weeks of UVA exposure that is received from the sun.

# Causes of Hyperpigmented Skin



## UV Radiation - continued

### Sunburn

After or during UV exposure, the skin becomes very red, painful and sensitive to the touch, which is caused by dilation of blood vessels and stimulation of nerve endings in the skin. The skin becomes excessively dry as the skin cells are literally baked to an extreme dehydrated condition.

After a short period of time there is a natural, genetically controlled series of steps that occurs to kill off skin cells harmed by UV radiation so that they do not turn cancerous. The end result is that the cell self-destructs or commits suicide. This is called cell apoptosis.

Other cells, known as phagocytes, arrive and engulf the remnants in order to avoid an inflammatory reaction. In the event of a sunburn, very gentle, hydrating techniques to treat the skin must be used and any exfoliating and stimulating treatments must be avoided.

It is vital that the sunburnt skin is not exposed to further excess solar radiation as this may result in long term skin damage.



## Medication

Medication is a major cause of hyperpigmentation. When treating hyperpigmentation it is important to be fully aware of all the medication that the client is taking as well as the frequency. Drug-induced pigmentation changes occur in any race whereas people with darker skin often exhibit more intense hyperpigmentation than individuals with fair skin.

Drug-induced pigmentary abnormalities may be classified into three groups:

- Hyperpigmentation - darkening
- Hypopigmentation - lightening
- Dyspigmentation - combination of hyper and hypopigmentation

There are many causes for drug-induced pigmentation disorders. The rate of drug-induced pigmentation varies depending on the drug and cumulative dose.

There are 3 mechanisms which cause drug related pigmentation:-

- The by-product of the drug gets deposited in the dermis and epidermis
- Enhanced melanin production with or without an increase in the number of active melanocytes
- Drug-induced post inflammatory changes to skin

A large number of drug groups are well known for their ability to induce unusual colouring in the mucous membranes and skin.

These medications are among the most commonly implicated medications in acquired pigmentation.

# Causes of Hyperpigmented Skin



## Medication - continued

Medications that cause pigimentary abnormalities:

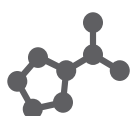
Name of medication	Indication	Side-effects
Anti-malaria medication	Prevent or treat malaria	<ul style="list-style-type: none"> <li>■ Hyperpigmentation</li> <li>■ Photosensitivity</li> </ul> <p>The pigimentary effects of this drug tend to be reversible, with slow reversal of skin colour back to normal within several months after stopping the drug.</p> <p>The latest anti-malarial medication causes less damage.</p>
Chemotherapeutics	<p>Prescribed for the treatment of cancer. Cancer cells replicate more frequently and quickly than normal cells.</p> <p>Chemotherapy drugs target genetic material inside the nuclei of cells, stopping the replication.</p>	<ul style="list-style-type: none"> <li>■ Hyperpigmentation</li> <li>■ Photosensitivity</li> </ul> <p>Increase in direct toxicity, stimulation of melanocytes and inflammation.</p> <p>May appear 2 - 3 weeks after treatment begins.</p> <p>Hyperpigmentation may disappear 10 - 12 weeks after treatment BUT may be permanent.</p>
Heavy Metals	<p>Silver sulfadiazine is the standard of care in the treatment of extensive burns.</p> <p>Gold is used as an alternative therapy for patients with rheumatoid arthritis.</p> <p>Mercury treats certain diseases such as Typhoid fever.</p> <p>Bismuth treats temporary discomforts of the stomach and gastrointestinal tract.</p>	<ul style="list-style-type: none"> <li>■ Pigmentary disturbances</li> </ul>

# Causes of Hyperpigmented Skin



## Medication - continued

Name of medication	Indication	Side-effects
Tetracyclines and Minocyclines	Antibiotics with anti-inflammatory properties used in the treatment of skin infections such as acne	<ul style="list-style-type: none"> <li>■ Pigmentary disturbances</li> </ul> Causes photosensitivity resulting in overstimulation of melanocytes.  Results in an increase in the uneven production and distribution of melanin.
Amiodarone	Coronary vasodilator used in the treatment of cardiac arrhythmias	<ul style="list-style-type: none"> <li>■ Induces blue-grey pigmentation of sun exposed skin</li> </ul>
Azidothymidine (AZT)	Highly active anti-retroviral therapy for patients with HIV	<ul style="list-style-type: none"> <li>■ Causes a reversible mucocutaneous hyperpigmentation.</li> </ul>
Psychotropic drugs	Heavy tranquilisers, antipsychotic medications and anti-depressants used to treat various mental disorders	<ul style="list-style-type: none"> <li>■ Photosensitivity</li> <li>■ Blue-grey pigmentation in sun-exposed areas of the skin.</li> </ul>
Psoralens	Treatment of psoriasis and vitiligo	<ul style="list-style-type: none"> <li>■ Discolouration of mucous membranes</li> </ul>
Topical Hydroquinone	Skin bleaching agent	<ul style="list-style-type: none"> <li>■ May cause blue-black darkening of the skin</li> </ul>
Topical Ophthalmic Medication	Treats glaucoma	<ul style="list-style-type: none"> <li>■ Discolouration of mucous membranes</li> </ul>



## Hormone Imbalance

### Definition of Hormones

A hormone is a chemical released by a cell or a gland in one part of the body that sends out messages that affect cells in other parts of the body. They are produced in the endocrine glands.

The main endocrine glands in the body are the following:-

- Pituitary gland
- Thyroid
- Thymus
- Adrenal glands
- Pancreas

# Causes of Hyperpigmented Skin



## Hormone Imbalance - continued

Hormones are dominant and it only requires a small amount of them to cause significant changes throughout the body. Both men and women produce hormones in the same areas with one exception, the sexual organs. Additional male hormones are produced in the testes while women's are produced in the ovaries.

Hormones work slowly and affect many of the body's processes over time.

A hormone imbalance is when there is too little or too much of a particular hormone in one's body and various body functions are affected. An imbalance of hormones is experienced at different times during life. Puberty is the term given to the stage of life when the body changes from childhood to adulthood and is experienced by both males and females.

Women will experience hormonal changes when they are pregnant and then again another change later in life after their childbearing years have passed. The hormonal health of women depends upon the delicate balance between progesterone and oestrogen. Oestrogen is meant to be the predominant hormone in the first half of the menstrual cycle and progesterone is the predominant hormone in the second half.

There are many causes of hormone imbalance, but the root of the problem is something called Oestrogen Dominance - which means there is too much oestrogen and not enough progesterone present in the body.

Factors causing hormone imbalances:

### Oral Contraceptive

- Oral contraceptives or birth control pills, contain hormones that suppress ovulation.
- The pill contains both oestrogen and progesterone.
- Oestrogen and progesterone can both stimulate pigmentation through increasing tyrosinase activity, resulting in increased melanin formation and transfer.

### Pregnancy

- The hormonal imbalance women experience during pregnancy is perhaps the most common cause of hyperpigmentation disorders.
- Progesterone levels dramatically increase during pregnancy.
- There is also an increase in copper levels in pregnant women as the mineral is needed to form new blood cells for the foetus.
- During the melanogenesis process, copper is needed to help convert tyrosine into melanin and with the increase in copper availability, more melanin is therefore produced, causing hyperpigmentation.

# Causes of Hyperpigmented Skin



## Hormone Imbalance - continued

### Menopause

- Menopause is a natural event that normally occurs between the ages of 45 and 55 and is referred to as “the change of life.”
- The symptoms of menopause are caused by changes in oestrogen and progesterone levels.
- The ovaries make less of these hormones over time.
- A gradual decrease of oestrogen generally allows the body to slowly adjust to the hormonal changes.
- Oestrogen and progesterone all stimulate hyperpigmentation through increasing tyrosinase activity, resulting in increased melanin formation and transfer.

### HRT

- Hormone replacement therapy (HRT) is a treatment for women who have reached or passed menopause.
- HRT involves taking small doses of one or two female hormones, oestrogen and progesterone.
- Oestrogen and progesterone, all stimulate pigmentation through increasing tyrosinase activity, resulting in increased melanin formation and transfer.

### Something to think about...

In many countries the water supply is recycled and mixed with fresh water. Since synthetic hormones are not filtered out of the water, the levels of oestrogens in our drinking water are rising all the time - every time a woman on the Pill or HRT goes to the toilet in fact! “Filter your water or your water will filter you”.



## Stress

Stress is the emotional and physical strain caused by our response to pressure from the outside world. Common stress reactions include tension, irritability, inability to concentrate, and a variety of physical symptoms that include headaches and a faster heart rate.

Severe levels of stress have a direct effect on our hormones and can often cause an imbalance. If there is a mildly stressful situation, the body draws on its progesterone to produce the hormone cortisol to counteract the effect that stress has on the body. These are the hormones that protect against stress.

If the body is in a constant or permanent state of stress, an excess of cortisol is present in the blood stream which stimulates the melanocytes to overproduce melanin resulting in the production of pigmentation.

If hyperpigmentation is already present, high levels of stress can aggravate it further.

# Causes of Hyperpigmented Skin



## Trauma

Trauma refers to a physical injury, generally of a considerably severe degree. Skin trauma is when the skin or multiple layers of epithelial tissues experience serious and altering physical injury.

The below may be considered as trauma injuries to the skin:

- Cuts
- Burns
- Sun burns
- Scratches
- Friction of the skin in the region of large joints (elbows, knees)
- Piercing
- Tattooing
- Friction caused by tight underwear and clothes
- Scalp, traumatized by a comb
- Acne breakouts
- Skin disorder such as eczema or psoriasis
- Severe rashes
- Allergic reactions

The pigmentation caused by inflammation results in an epidermal inflammatory response. These products of inflammation alter the activity of both immune cells and melanocytes. It stimulates epidermal melanocytes, causing them to increase the synthesis of melanin and subsequently, increase the transfer of pigment to surrounding keratinocytes.

Such increased stimulation and transfer of melanin granules results in epidermal hyperpigmentation.

On the contrary, dermal pigmentation occurs when inflammation disrupts the basal cell layer, causing melanin pigment to be released and becoming trapped by macrophages in the papillary dermis. This is also known as pigmentary incontinence.

# Types of Pigmentation Disorders

## Uneven skin tone versus Pigmentation

### Uneven skin tone

“Uneven” is an umbrella term for skin that is blotchy, mottled or inconsistently coloured. While hyperpigmentation causes skin unevenness, other factors can make the skin tone uneven too. These include:-

- Irregular cellular turnover - eg. an uneven rate of exfoliation
- Hypopigmentation

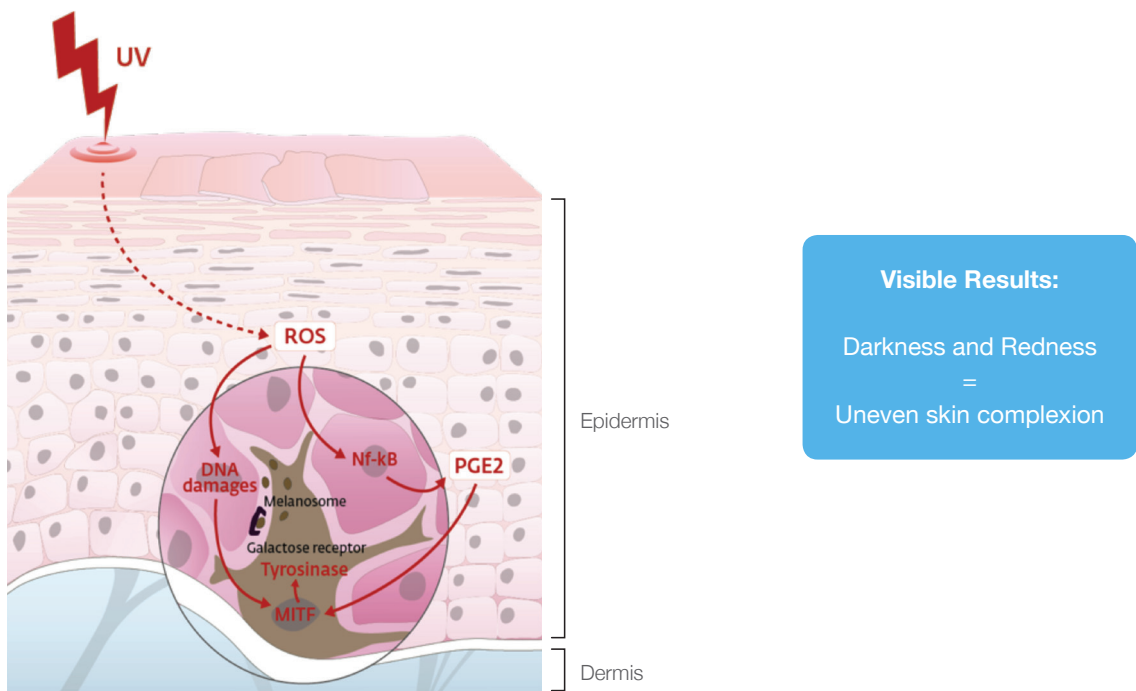
Skin tone is therefore not only referred to as skin colour or the unevenness of skin colour, it also includes skin roughness and dullness.

### Development of an uneven skin tone

When the skin is exposed to UV radiation or any other trigger factor, ROS develops within the skin. ROS causes the following within the skin:-

- ROS causes DNA damage which stimulates the melanogenesis process. Melanin is created for protection with the available tyrosinase enzyme which converts tyrosine into melanin.
- ROS also stimulates the inflammation pathway and the end result is redness and heat caused by prostoglandins.

Both DNA damage, as well as inflammation, stimulates the melanogenesis pathway.



# Types of Pigmentation Disorders

## Hyperpigmentation

This is a condition whereby the melanocytes in the body produce too much melanin. This results in the skin being darker. Hyperpigmentation is usually a consequence of:-

- Damage-induced inflammation
- UV damage
- Changes to hormone levels

The below hyperpigmentation disorders may be treated by Nimue.

### Ephelides / Freckles

- Ephelides is a genetic trait. Another name for ephelides is freckles.
- Freckles are clusters of concentrated melanin which are most often visible on people with a fair complexion.
- They are flat, light brown or red and fade in the winter.
- Although more common in people with light complexions, they may also be found on a variety of skin tones.
- The regular use of sunblock can inhibit their development.



Partially indicated for Nimue treatment

### Melasma

- Melasma is characterized by dark or grey/brown patches on the face.
- It mostly appears on the cheeks, bridge of their nose, forehead, chin, and above their upper lip. It can also appear on other parts of the body that get a lot of sun, such as the forearms and neck.
- Melasma generally affects women more than men as the condition is often associated with the female hormones oestrogen and progesterone.
- It is especially common in women who are taking birth control pills and women taking hormone replacement therapy (HRT) during menopause.
- The sun stimulates the melanocytes, making the condition worse. Just a small amount of sun exposure results in the melasma worsening and reoccurring even after effective treatment.

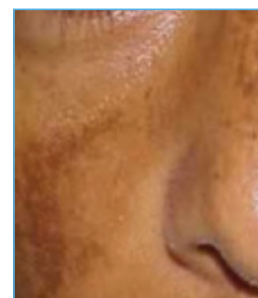


Indicated for Nimue treatment

# Types of Pigmentation Disorders

## Chloasma

- Chloasma is characterized by a blotchy, brownish pigmentation on the face appearing on the forehead, cheeks and upper lips resulting in macules.
- Macules are freckle-like spots that develop gradually. Just as the pigmentation develops slowly, it also gradually fades with time.
- This condition is brought about by hormones due to pregnancy.
- It is observed that chloasma is more common in people that have naturally dark skin in comparison with those who have fair skin.



Indicated for  
Nimue treatment

## Poikiloderma of Civatte

- Poikiloderma of Civatte is a skin condition that consists of areas of increased and decreased pigmentation, prominent blood vessels and thinning of the skin often seen on the sides of the neck, more commonly in women.
- Common causes of Poikiloderma of Civatte are:
  - Accumulated sun exposure
  - Photosensitising components of cosmetics and toiletries especially perfumes
  - Hormonal factors



Indicated for  
Nimue treatment

## Solar Lentigo / Lentigo Senilis / Senile Freckle

- Solar lentigo / Lentigo senilis / Senile freckle are also known as age spots or liver spots.
- These are blemishes on the skin associated with ageing and exposure to ultraviolet radiation from the sun. They range in colour from light brown to red or black and are located in areas most often exposed to the sun, particularly the hands, face, shoulders, arms and forehead and the scalp, if bald.
- Although liver spots were once incorrectly believed to be caused by liver problems, they are physiologically unrelated to the liver, save for a similar colour.
- From the age of 40 onward, the skin is less able to regenerate from sun exposure and liver spots are very common in this age group, particularly in those who spend time in the sun.
- In the vast majority of cases, liver spots pose no threat and require no treatment, though they occasionally have been known to obscure the detection of skin cancer. However, despite being a benign condition, liver spots are sometimes considered unsightly and some people choose to have them removed.



Indicated for  
Nimue treatment

# Types of Pigmentation Disorders

## Moles

- The medical term for a mole is a “melanocytic naevi”.
- The word ‘melanocytic’ means that they are made up of melanocytes that cluster together to form naevi. In other words, moles are localized and benign accumulations of melanocytes.
- Some moles are present at birth and are known as congenital melanocytic naevi whereas moles that come up later are known as acquired melanocytic naevi.
- Most people have at least one acquired mole and many people have several moles with some coming up in early childhood and others come up later, particularly during
- adolescence and pregnancy.
- It is important to check moles often and visit a dermatologist once a year to make sure that the moles have not turned into melanomas.
- A good way to monitor moles is the A, B, C, D, E check. If any of these change
- there could be some malignant activity occurring

A = Asymmetry. The sides of the mole must match each other

B = Border. The edges of the mole must be regular and even

C = Colour. The colour of the mole must be even

D = Diameter. The size of the mole must be no bigger than a pencil eraser

E = Elevated. The mole must not be too elevated

	Benign	Malignant	
Symmetrical			Asymmetrical (the two sides do not match)
Borders are even			Borders are uneven
One colour			Two or more colours
Smaller than 1/4 inch			Larger than 1/4 inch
Ordinary mole			Changing in size, shape, colour or another trait

# Types of Pigmentation Disorders

## Post Inflammatory Hyperpigmentation - PIH

- Post inflammatory hyperpigmentation, or PIH, is the medical term given to discolouration of the skin that follows an immoderate inflammatory response to trauma on the skin.
- PIH presents itself as a flat area of discolouration on the skin (macule) ranging from pink to red, purple, brown or black, depending on your skin tone and depth of the discolouration. This discolouration remains even after the wound has healed.
- PIH is very common among acne sufferers.
- It is also associated with some allergic reactions, mechanical injuries, reactions to medications, phototoxic eruptions, trauma (eg, burns), and inflammatory diseases (eg. lichen planus, lupus erythematosus, atopic dermatitis).
- Should there be too much iron in the skin due to supplementation, it may also cause darker areas on the skin.
- PIH can occur in all skin types, although it is more common in darker skin tones.
- It affects both men and women equally.
- PIH results in either epidermal melanosis or dermal melanosis.



Indicated for  
Nimue treatment

## Hypopigmentation

This is a condition whereby the melanocytes in the body produce too little or no melanin. This results in the skin being lighter or completely white.

The below hypopigmentation disorders may not be treated by Nimue.

### Albinism

Albinism is a condition that occurs when there is complete depigmentation. It is a genetic disorder and there is no cure.

The symptoms are:-

- Absence of colour in the hair, skin, or iris of the eye
- Lighter than normal skin and hair
- Patchy, missing skin colour

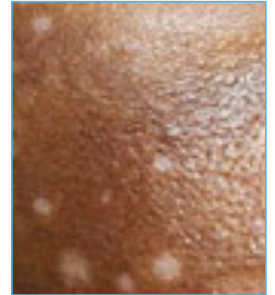


Not indicated for  
Nimue treatment

# Types of Pigmentation Disorders

## Leukoderma

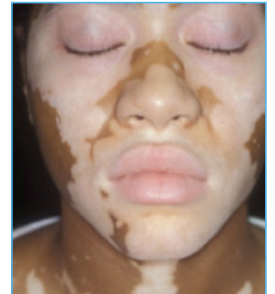
- Leukoderma is a skin disease also known as white patch due to the development of circumscribed depigmented patches.
- There is complete loss of melanocytes from the affected patch.
- There may be positive family history of the disorder in those generalized.



Not indicated for  
Nimue treatment

## Vitiligo

- Vitiligo is a disorder that causes depigmentation of the skin.
- It occurs when melanocytes die or are unable to function.
- It appears as flat areas of normal-feeling skin without any pigment which appear suddenly or gradually.
- These areas have a darker border with the edges well defined, but irregular.
- Vitiligo most often affects the face, elbows and knees, hands and feet and genitals. It affects both sides of the body equally.
- Vitiligo is more noticeable in darker-skinned people because of the contrast of white patches against dark skin.



Not indicated for  
Nimue treatment

## Tinea Versicolor

- Tinea Versicolor is a condition caused by an overgrowth of the yeast that lives in the skin.
- The main symptom is patches of discoloured skin with sharp borders and fine scales.
- The patches are often dark reddish-tan in colour.
- The most common sites are the back, underarms, upper arms, chest, and neck. Affected areas do not darken in the sun.



Not indicated for  
Nimue treatment

### Causes:

- Hot, humid weather
- Lots of sweating
- Oily skin
- A weakened immune system

# Retail Hyperpigmented Ingredients and Products

## Introduction

Nimue has upgraded and improved on the existing products for the treatment of hyperpigmentation. This new generation of products not only focuses on hyperpigmentation, but also targets other major skin complexion disorders such as uneven skin complexion, dark spots, blemishes, redness, dullness and inflammation.

It is based on a new triple action treatment approach:

- Transforms light energy
- Uses the skin microbiote to activate brightening
- Has a new mechanism of action on the melanocyte

These 6 new products includes the latest ingredients and technologies, ensuring products have high efficacy levels and results. Primary and secondary ingredients work in synergy to deliver optimum results.

It uses the skin, as the largest organ, to convert an active ingredient to a natural version within the skin. As we are using actives which is naturally present in the skin and which the skin recognises, there is less need for flushing the skin with chemical ingredients, which may further increase inflammation within the skin if overstimulated. This improved technology allows Nimue to use more advanced actives to treat this difficult skin condition.

To ensure product efficacy, an advanced delivery system is used which allows for the even penetration of actives.

Clinical trials, with claim substantiation, has been performed at an Independent Clinical Testing Laboratory in France.



# Retail Hyperpigmented Ingredients and Products

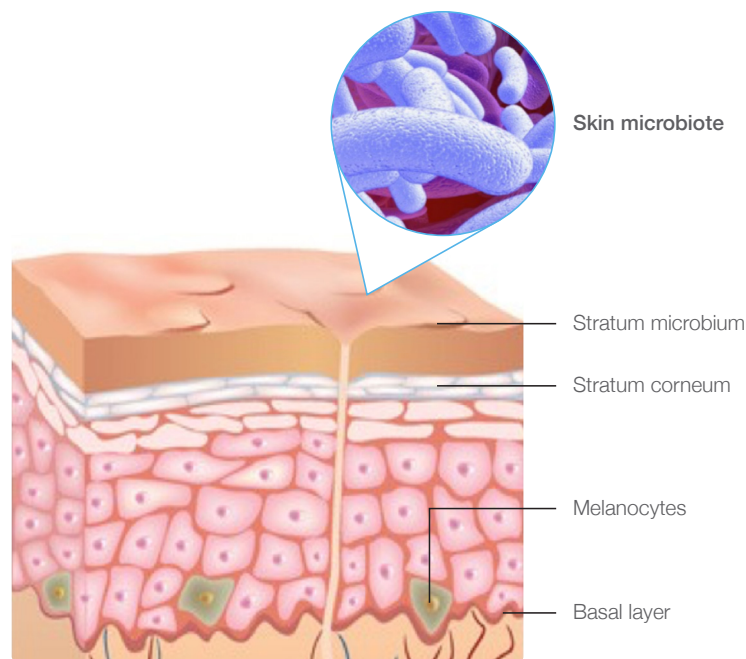
## Concept of the Fader Products

The Fader products not only address hyperpigmentation, but also an uneven skin tone. Together, the focus is on achieving an even skin complexion.

The ingredient technology behind the Nimue Fader products includes the use of a newly discovered layer of the skin, the **stratum microbium**. This layer has always been there, but has never been used for ingredient efficacy and penetration.

### Stratum Microbium

The stratum microbium represents the global innate population of micro-organisms living on our skin surface and partially in the stratum corneum, that we acquired during evolution to maintain the healthy status of the skin. It can be seen as an active living veil on the skin. The micro-organisms are also referred to as the **skin microbiote**. The skin microbiote is constantly communicating with the epidermal cells, generating metabolites and stimulating their cellular interactions.

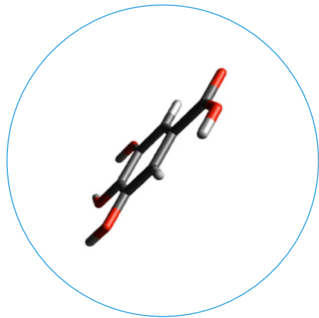
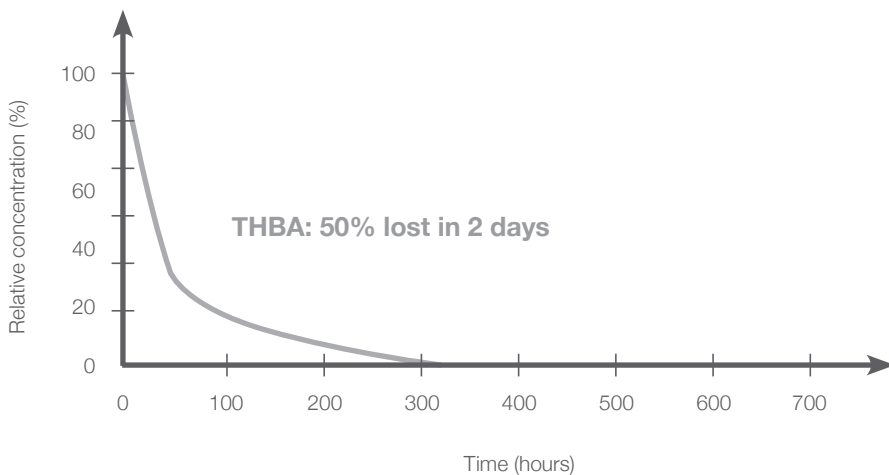


Metagenomic analysis revealed that the bacteria of the stratum microbium can produce **alpha-glucosidase** (enzyme) which is able to cut glucose within the skin. The discovered  $\alpha$ -glucosidase activity has been used to design a new generation of active compounds.

# Retail Hyperpigmented Ingredients and Products

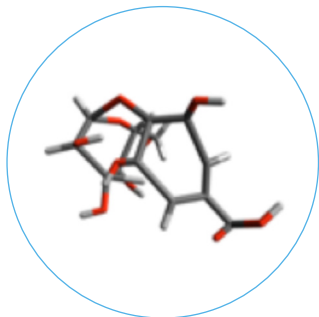
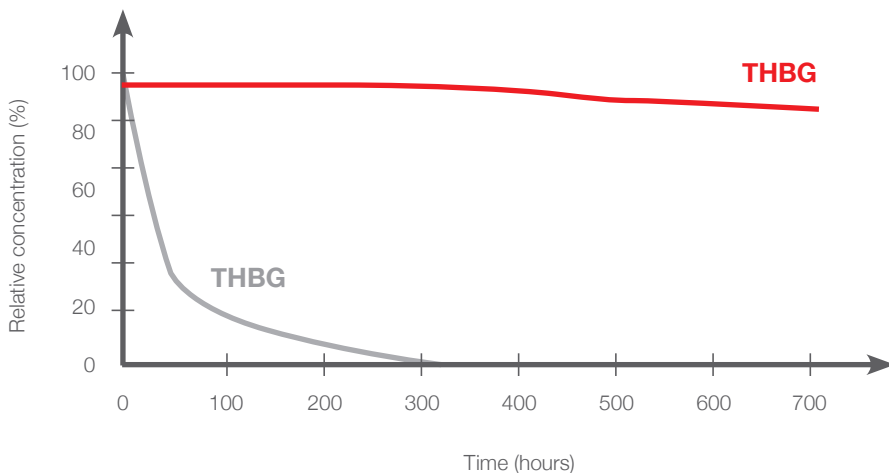
## THBA

**THBA** or *Tri Hydroxy Benzoic Acid* is naturally present within the skin. It is a very powerful anti-oxidant and is able to break down the effects of free radicals. Additionally, it is an equally powerful tyrosinase inhibitor, but because it is a highly unstable molecule and insoluble in water, it is unable to be used in a formulation and is needed to be introduced transdermally into the skin to achieve the desired results.



## THBG

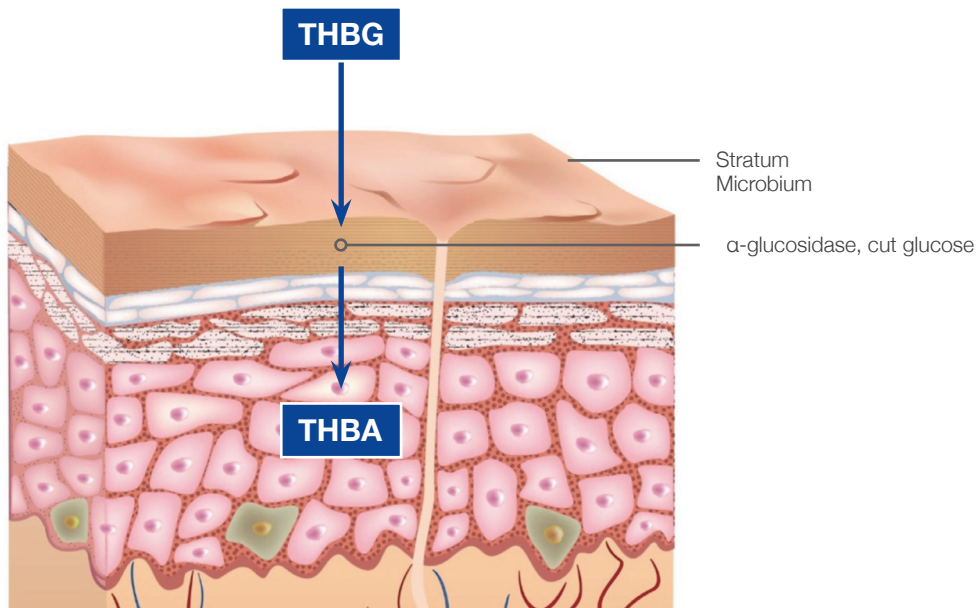
**THBG** or *Tri Hydroxy Benzoic Acid Glucoside* has been proven to control the skin colour by working with the stratum microbium. It is not a tyrosinase inhibitor on its own, but it is a stable molecule, is soluble in water and causes no skin irritation or sensitisation. It also contains a glucose molecule.



# Retail Hyperpigmented Ingredients and Products

## The synergistic actions of THBA and THBG

With the introduction of THBG to the skin, the alpha-glucosidase that is found in the skin microbiote of the stratum microbium, will then cut off the glucose molecule from THBG via the enzymatic chemical reaction and the resulting molecule left is THBA, the natural tyrosinase inhibitor which will positively affect the skin complexion and hyperpigmentation.



The skin is able to recognise the sugar within the THBG molecule and accepts it without the need of flushing the skin with chemical ingredients which the skin does not recognise, resulting in possible skin sensitisation.

THBA works on both pathways caused by ROS - the DNA damage and the inflammatory pathway that both trigger the melanogenesis process.

# Retail Hyperpigmented Ingredients and Products

## Indications

### Primary - Consumers aged 20+

- Uneven skin complexion
- Hyperpigmented skin conditions
- Darker spots and blemishes

### Secondary

- Redness
- Roughness
- Inflammation (from sun damage and pollution)
- Dull skin
- All complexion related conditions

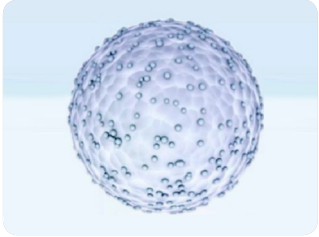
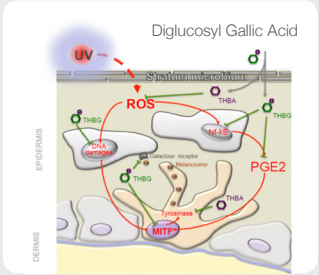
## Key benefits

### General benefits: multi-functionality

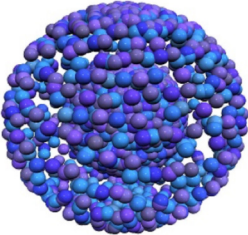
- DNA photo protection - inhibits ROS production
- Powerful anti-oxidant - control of free radicals
- Redness correction
- Control of inflammation
- Increase in skin brightness
- Age spot reduction - blocks melanin synthesis and stops melanin transfer
- Skin tone uniformisation
- Increased skin radiance and luminosity

# Retail Hyperpigmented Ingredients and Products

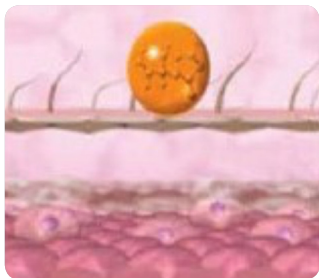
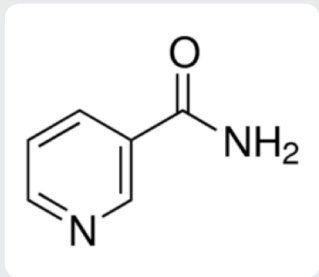
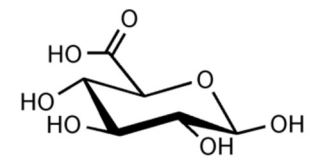
## Nimue Hyperpigmented Ingredients - Retail

Primary actives in Nimue Fader products			
<p><b>Triple action approach</b></p> <ol style="list-style-type: none"> <li>1. Cosmetic drone for skin brightening</li> <li>2. Using the skin microbiote to activate brightening</li> <li>3. A new mechanism of action from the heart of the melanocyte</li> </ol>			
Active ingredient	Key function	Benefit	Nimue product
<p><b>Ligand Peptide / Synthesised Peptides (Palmitoyl Sh-Tripeptide-5 Norisoleucyl Sh-Nonapeptide-1, Palmitoyl Sh-Octapeptide-24 Amide)</b> <i>(In all Fader products)</i></p> 	<ul style="list-style-type: none"> <li>■ Cosmetic drone for skin brightening</li> <li>■ Transforms light energy absorbed by the skin into cellular energy</li> </ul>	<ul style="list-style-type: none"> <li>■ Increases cellular activity</li> <li>■ Increased radiance and luminosity</li> </ul>	
<p><b>Diglucosyl Gallic Acid</b> <i>(In all Fader products)</i></p> 	<ul style="list-style-type: none"> <li>■ Using the skin microbiote to activate brightening</li> <li>■ Skin melanoregulator molecule activated by the stratum microbium</li> <li>■ Partially converts THBG by the skin microbiote into THBA, working in synergy to control skin colour</li> </ul>	<p>THBG and THBA has 7 levels of action</p> <ul style="list-style-type: none"> <li>■ Inhibits ROS production</li> <li>■ Prevents UV-induced DNA damages</li> <li>■ Controls the expression of MITF (Melanogenesis pathway) - STOPS melanogenesis process</li> <li>■ Reduces the expression PGE2 (prostaglandin producing receptor) - DECREASES vasodilation and redness</li> <li>■ Controls the Nf-kB pathway (inflammatory cascade) - REDUCES inflammation</li> <li>■ Saturates keratinocyte receptors - STOPS melanin transfer</li> <li>■ Blocks melanin synthesis even under UV conditions - WHITENS the skin</li> </ul>	



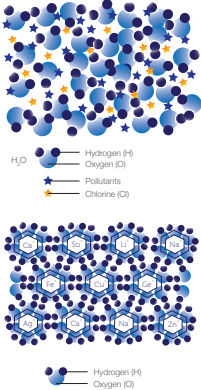
# Retail Hyperpigmented Ingredients and Products

Primary actives in Nimue Fader products - continued			
Active ingredient	Key function	Benefit	Nimue product
<p><b>Octadecenedioic Acid (ODA)</b> <i>(In all Fader products)</i></p> 	<ul style="list-style-type: none"> <li>■ A new mechanism of action from the heart of the melanocyte</li> <li>■ Inhibits the entire metabolic pathway of melanin synthesis from the nucleus of the melanocyte</li> <li>■ Works on protein complex PPARγ (peroxisome proliferator activated receptor gamma - the inflammatory stimulating receptor) that regulates the transcription of the tyrosinase gene</li> <li>■ Reduces tyrosinase and melanin production</li> </ul>	<ul style="list-style-type: none"> <li>■ Skin brightening</li> <li>■ Reduces inflammation</li> </ul>	

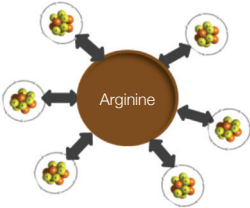

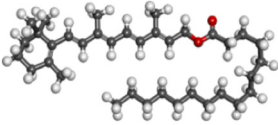
# Retail Hyperpigmented Ingredients and Products

Secondary actives in Nimue Fader products			
Active ingredient	Key function	Benefit	Nimue product
<p><b>Micro-encapsulated Vitamin C</b> (Magnesium Ascorbyl Phosphate) <i>(In all Fader products)</i></p> 	<ul style="list-style-type: none"> <li>■ Brightens the skin</li> <li>■ Flexible round capsules that can misshape and reshape to their original sizes</li> </ul>	<ul style="list-style-type: none"> <li>■ Greater efficiency of skin permeation</li> <li>■ Increased bioavailability</li> </ul>	
<p><b>Nicotinamide (Vitamin B3)</b> <i>(In all Fader products)</i></p> 	<ul style="list-style-type: none"> <li>■ Repairs skin DNA</li> <li>■ Rebalances skin tone and reduces discolouration</li> <li>■ Inhibits melanosome transfer by up to 68%</li> <li>■ A component of NAD, essential co-enzymes in cellular energy production (ATP)</li> </ul>	<ul style="list-style-type: none"> <li>■ Assists in the protection of a UV stressed skin and prevention of UV damage</li> <li>■ A safe and effective ingredient in the treatment of an uneven skin tone</li> </ul>	
<p><b>Polyglucuronic Acid</b> <i>(In Night Fader, Night Fader Plus, Fader Serum)</i></p> 	<ul style="list-style-type: none"> <li>■ Moisturises and increases elastin synthesis</li> <li>■ Restores and maintains an optimal hyaluronic acid renewal rate</li> </ul>	<ul style="list-style-type: none"> <li>■ Increases skin suppleness and resistance</li> </ul>	


# Retail Hyperpigmented Ingredients and Products

Secondary actives in Nimue Fader products - continued			
Active ingredient	Key function	Benefit	Nimue product
<p><b>Albizia Julibrissan Extract</b> (In <i>Night Fader</i>, <i>Night Fader Plus</i>)</p> 	<ul style="list-style-type: none"> <li>■ Protects and repairs</li> <li>■ Reduces the visible signs of fatigue and ageing</li> </ul>	<ul style="list-style-type: none"> <li>■ Detoxifies the skin of glycotoxins, therefore protects and repairs protein structures damaged by glycation</li> <li>■ Reduces dark circles, dull complexion and tired, drawn features</li> </ul>	
<p><b>Physalis Angulata Extract</b> (<i>Day Fader</i>, <i>Day Fader Plus</i>)</p> 	<ul style="list-style-type: none"> <li>■ Prevention and protection against thermal ageing including infra red and visible light rays</li> <li>■ Inhibits ROS production</li> </ul>	<ul style="list-style-type: none"> <li>■ Reduces inflammatory mediators resulting in a soothing effect on the skin</li> </ul>	
Delivery system			
Active ingredient	Key function	Benefit	Nimue product
<p><b>Polarised Water</b> (In <i>all Fader products</i>)</p> 	<ul style="list-style-type: none"> <li>■ Allows for an even distribution of actives into the skin</li> </ul>	<ul style="list-style-type: none"> <li>■ Allows for even penetration and consistent result</li> <li>■ Ensures the actives reach their target site</li> <li>■ Improves stability of actives used</li> <li>■ Reduces irritation potential</li> </ul>	

# Retail Hyperpigmented Ingredients and Products

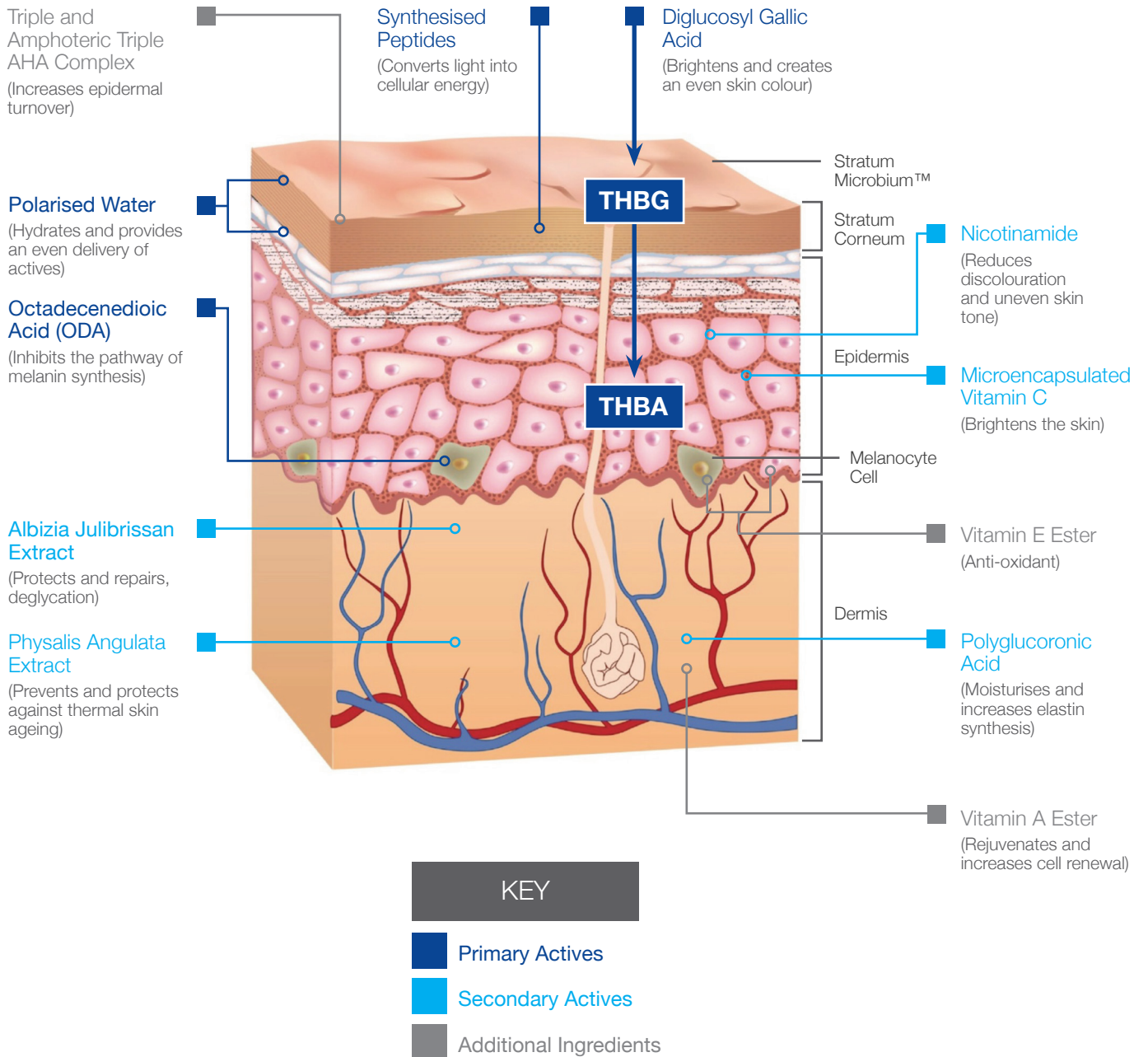
Additional ingredients			
Active ingredient	Key function	Benefit	Nimue product
<p><b>Amphoteric Triple AHA Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Skin rejuvenation</li> <li>■ Exfoliation</li> <li>■ Moisturisation</li> <li>■ Skin brightening by exfoliation</li> </ul>	<ul style="list-style-type: none"> <li>■ The amphoteric system is the creation of a delivery system for the AHA's (Glycolic and Lactic Acid), i.e. slow release.</li> <li>■ The "actives" are still the same as before however, because they are available to the skin over a prolonged period, the potential irritation is eliminated.</li> </ul>	
<p><b>Triple AHA Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Skin rejuvenation</li> </ul>	<ul style="list-style-type: none"> <li>■ Rejuvenates the skin and promotes exfoliation.</li> <li>■ Accelerated cell proliferation process assists in the upward migration of keratinocytes and melanin granules.</li> </ul>	
<p><b>Vitamin A Ester (Retinyl Palmitate)</b></p> 	<ul style="list-style-type: none"> <li>■ Repair of a photo damaged skin</li> <li>■ Increases cell proliferation</li> <li>■ Normalises keratinisation and assists in shedding pigmented keratinocytes by improving cell turnover</li> <li>■ Increase levels of GAGS, improving dermal hydration</li> </ul>	<ul style="list-style-type: none"> <li>■ Used for its rejuvenation properties through repairing and treating signs of environmental or photo damage in the skin.</li> </ul>	

# Retail Hyperpigmented Ingredients and Products

Additional ingredients - continued			
Active ingredient	Key function	Benefit	Nimue product
<p><b>Vitamin E Ester</b></p> 	<ul style="list-style-type: none"> <li>■ Anti-oxidant</li> </ul>	<ul style="list-style-type: none"> <li>■ Vitamin E Ester is 40-50 times stronger than Vitamin E therefore providing an increased anti-oxidant potential</li> <li>■ Protects cells, including the melanocyte cell, against the effects of free radicals</li> </ul>	

# Retail Hyperpigmented Ingredients and Products

## Direct and indirect effect on hyperpigmentation





Cleansing Gel	140ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>■ Soap-free, creamy gel cleanser</li> <li>■ Gently hydrates</li> </ul>		<ul style="list-style-type: none"> <li>■ 1.4% Triple AHA Complex</li> </ul>	



Conditioner	140ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>■ Improves texture</li> <li>■ Degreasing and deep cleansing</li> <li>■ Anti-bacterial and anti-inflammatory</li> </ul>		<ul style="list-style-type: none"> <li>■ 7% Triple AHA Complex</li> </ul>	



Cleansing Milk	140ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>■ Light exfoliation and increased hydration</li> <li>■ Restores the skin's natural balance</li> </ul>		<ul style="list-style-type: none"> <li>■ 1% AHA Complex</li> <li>■ Milk Peptides</li> <li>■ Ceramide-3</li> </ul>	



Day Fader	50ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>■ Blocks melanin synthesis even under UV conditions</li> <li>■ Inhibits ROS production</li> <li>■ Prevention and protection against thermal ageing</li> </ul>		<ul style="list-style-type: none"> <li>■ Synthesised Peptides</li> <li>■ Diglucoyl Gallic Acid</li> <li>■ Physalis Angulata Extract</li> </ul>	



Day Fader Plus	50ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>■ Blocks melanin synthesis even under UV conditions</li> <li>■ Stops the melanogenesis process</li> <li>■ Increase in skin nourishment</li> </ul>		<ul style="list-style-type: none"> <li>■ Octadecenedioic Acid</li> <li>■ Synthesised Peptides</li> <li>■ Diglucoyl Gallic Acid</li> </ul>	



Night Fader	50ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>■ Stops the melanogenesis process</li> <li>■ Inhibits ROS production</li> <li>■ Decreases the visible signs of skin fatigue</li> </ul>		<ul style="list-style-type: none"> <li>■ Synthesised Peptides</li> <li>■ Diglucoyl Gallic Acid</li> <li>■ Albizia Julibrissan Extract</li> </ul>	

# Hyperpigmented Products



Night Fader Plus	50ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Stops the melanogenesis process</li> <li>Increased skin radiance</li> <li>Increase in skin moisturisation and nourishment</li> </ul>		<ul style="list-style-type: none"> <li>Octadecenedioic Acid</li> <li>Diglycosyl Gallic Acid</li> <li>Polyglucuronic Acid</li> </ul>	



Exfoliating Enzyme	60ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>Non-irritating, non-abrasive enzymatic exfoliation</li> <li>Refines skin texture</li> </ul>		<ul style="list-style-type: none"> <li>Papaya Enzymes</li> <li>Pineapple Enzymes</li> </ul>	



Element Barrier	20ml/100ml	Main Ingredients	pH 6.0
<ul style="list-style-type: none"> <li>Moisturises the stratum corneum</li> <li>Reduces sensitivity to UV radiation, Infra-red and inflammation</li> </ul>		<ul style="list-style-type: none"> <li>Complex of Phyto-ceramides-6</li> <li>Artemia Salina Extract</li> </ul>	



SPF 40	60ml	Main Ingredients	pH 6.5
<ul style="list-style-type: none"> <li>Lightweight, non-oily and non-whitening emulsion</li> <li>Protection against UVA/UVB</li> <li>Anti-ageing benefits</li> </ul>		<ul style="list-style-type: none"> <li>Inorganic Physical Sunscreen</li> <li>Organic Chemical Sunscreen</li> </ul>	



Tinted SPF 40	60ml	Main Ingredients	pH 6.5
<ul style="list-style-type: none"> <li>Protection against UVA/UVB</li> <li>Reduces the appearance of dark areas, pigment spots and redness</li> <li>Available in 3 shades: light, medium, dark</li> </ul>		<ul style="list-style-type: none"> <li>Inorganic and Organic Sunscreens</li> <li>Colour pigments</li> </ul>	



Environmental Shield SPF 50	20ml/50ml	Main Ingredients	pH 7.5
<ul style="list-style-type: none"> <li>Protection against UV (SPF 50), IR and HEV</li> <li>Stops ROS formation</li> <li>Protection against pollution</li> </ul>		<ul style="list-style-type: none"> <li>Fused Ring Cyanoacrylate</li> <li>Environmental Shield Polymer</li> <li>65% Zinc Oxide Dispersion</li> </ul>	



Active Lotion	60ml	Main Ingredients	pH 3.5
<ul style="list-style-type: none"> <li>Exfoliation and renewal</li> <li>Improvement in skin texture</li> </ul>		<ul style="list-style-type: none"> <li>10% Amphoteric Triple AHA Complex</li> </ul>	



Fader Serum	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Stops the melanogenesis process</li> <li>Prevents melanin transfer</li> <li>Increased skin radiance</li> </ul>		<ul style="list-style-type: none"> <li>Octadecenedioic Acid</li> <li>Synthesised Peptides</li> <li>Diglucoyl Gallic Acid</li> </ul>	



Fade Treatment	10ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Depigmentation of localised pigmentation spots and discolouration</li> <li>Reduces localised inflammation</li> <li>Stops the melanogenesis process</li> </ul>		<ul style="list-style-type: none"> <li>Octadecenedioic Acid</li> <li>Diglucoyl Gallic Acid</li> <li>Nicotinamide</li> </ul>	



Pre & Post Serum	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Reduces effects of dry and dehydrated skin</li> <li>Rapid skin barrier repair with regulated transepidermal water loss</li> </ul>		<ul style="list-style-type: none"> <li>Isostearyl Isostearate</li> <li>Scientifically Balanced Moisturisation Complex (SBMC)</li> <li>Mirabilis Jalapa Extract</li> </ul>	



Nimue-TDS™ Hyperpigmented Skin	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Reduces the appearance of hyperpigmentation</li> <li>Brightens the skin</li> <li>Protects against free radical damage</li> </ul>		<ul style="list-style-type: none"> <li>Octadecenedioic Acid</li> <li>Micro-encapsulated Vitamin C</li> <li>Isostearyl Isostearate</li> </ul>	

# Hyperpigmented Products



Nimue-TDS™ Interactive Skin	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>■ Desensitises the skin</li> <li>■ Offers comfort to sensitive skin</li> <li>■ Reduces fine lines and wrinkles</li> </ul>		<ul style="list-style-type: none"> <li>■ Lipopeptide</li> <li>■ Mirabilis Jalapa Extract</li> <li>■ Isostearyl Isostearate</li> </ul>	



Pro Age Foundation	30ml	Main Ingredients	
<ul style="list-style-type: none"> <li>■ Provides a smooth finish, softens and disguises lines and imperfections</li> <li>■ Lifting and tightening effect, long-lasting anti-ageing benefits</li> <li>■ Skin barrier and UVB protection</li> </ul>		<ul style="list-style-type: none"> <li>■ Ceramide 2</li> <li>■ Palmitoyl Hexapeptide-12</li> <li>■ Lifting Complex</li> </ul>	

# Retail Hyperpigmented Ingredients and Products

## Independent Clinical Studies

Each product was tested individually for efficacy on 20 Caucasian volunteers (except for the Fader Serum which also performed testing on Asian skin) over 8 weeks/56 days by an independent laboratory based in France. The products were tested separately and not in a layered application.

The results are based on twice daily application.

### Nimue Day Fader

#### Product Measured

- Skin appears to be 31% less pigmented after 8 weeks of product use
- 31% lighter after 8 weeks
- 34% improvement in even skin tone after 8 weeks

#### Subject Claims

- 85% of subjects experienced a skin lightening effect
- 85% of subjects experienced a decrease in skin pigmentation and a lighter skin
- 69% of subjects experienced a more even skin tone

### Nimue Fader Serum

#### Product Measured: on Asian sample only

- Skin appears to be 21% less pigmented after 8 weeks of product use

#### Subject Claims

- 71% of subjects experienced a skin lightening effect
- 57% of subjects experienced a decrease in skin pigmentation
- 64% of subjects experienced a more even skin tone

### Nimue Fade Treatment (Face)

#### Product Measured

- Skin appears to be 15% less pigmented after 8 weeks of product use
- 18% decrease in the colour of the pigmentation spot
- 20% increase in even skin tone after 8 weeks

#### Subject Claims

- 71% of subjects experienced a skin lightening effect
- 57% of subjects experienced a decrease in skin pigmentation
- 71% of subjects experienced a more even skin tone



# index

# section **4**

## **Problematic Skin**

Part <b>1</b>	Introduction to Problematic Skin
Part <b>2</b>	Development of Problematic Skin
Part <b>3</b>	Causes of Problematic Skin
Part <b>4</b>	Types of Acne
Part <b>5</b>	Acne Lesions and Grades of Acne
Part <b>6</b>	Acne Myths
Part <b>7</b>	Medically prescribed treatments
Part <b>8</b>	Retail Problematic Ingredients and Products



# Introduction to Problematic Skin

## Introduction

Problematic skin, also classified as acne, presents in varying degrees and symptoms. It affects people of all races and ethnic groups. Though acne is supposed to go away after the teens, it can persist for many years and it can appear or reappear in adults in their 20's, 30's or even into their 40's or 50's. Almost everyone has at least a little of it at one point or another in their life. A few whiteheads or blackheads or an occasional small red pimple can usually be tolerated. However, persistent or severe acne is much more troubling. It affects more than just the skin. It can affect patients' entire lives in very real ways.

Any acne treatment takes at least a few weeks to work. Once a breakout has occurred, healing is gradual. It is better to prevent the breakouts from happening in the first place. This is why acne treatments should be used all the time, not just when lesions appear.

## Acne Vulgaris

Acne vulgaris is an inflammatory skin disease characterized by areas of skin with seborrhea, comedones, papules, pustules, nodules and possibly scarring. Acne affects the face, upper part of the chest, and the back. The lesions are caused by changes in the pilosebaceous units, skin structures consisting of a hair follicle and its associated sebaceous gland, changes that require androgen stimulation.

Acne is unique as a skin condition and a very controversial one because it does not only affect people with "oily skin". Its true cause is the skin's texture.

# Development of Problematic Skin

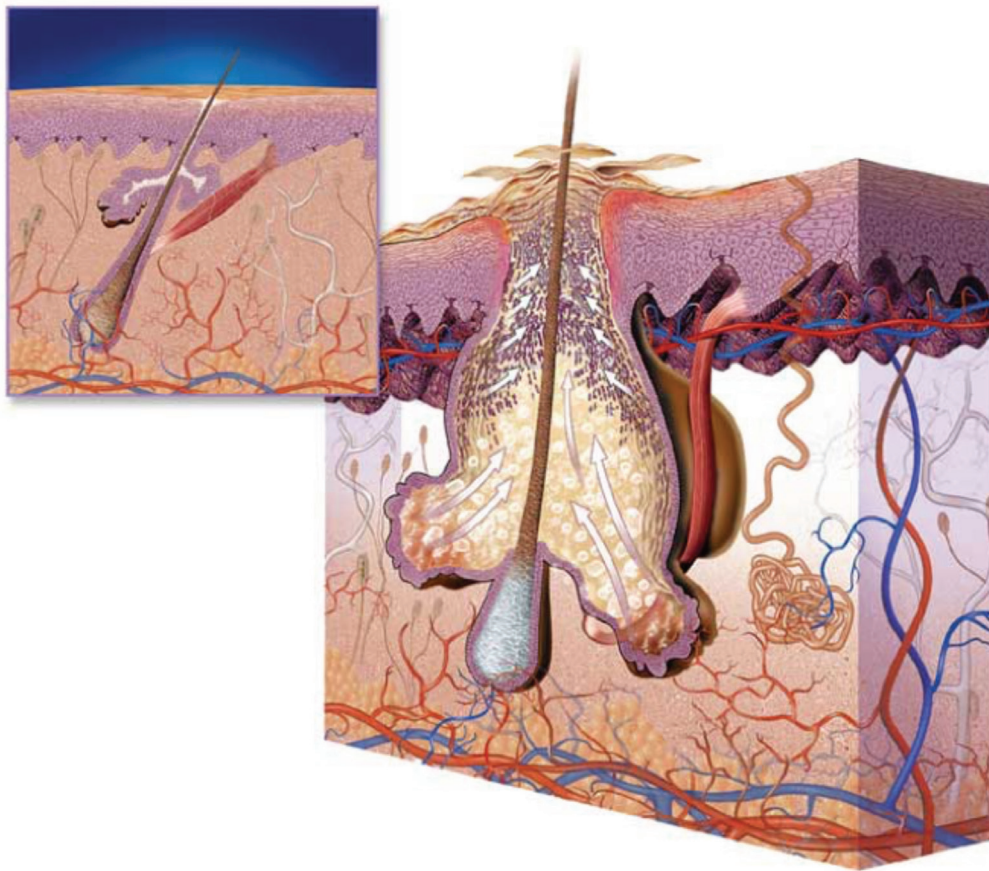
## Acne Origin

There are a few structures and hormones within the skin and body that play a major role in the formation of acne.

### Development of acne

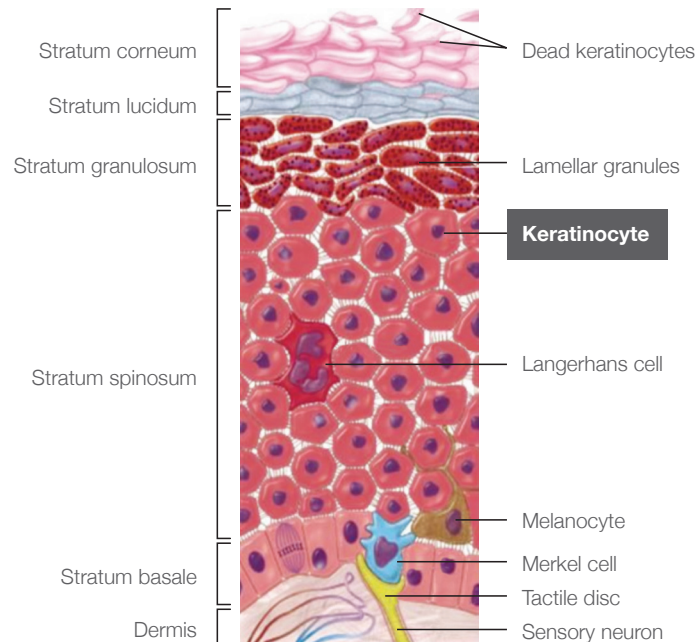
#### 6 major factors that lead to the production of acne

1. Retention hyperkeratosis
2. Hair is absent or very weak
3. Sebum within the sebaceous gland is thicker and stickier
4. Effect of androgen hormones on the sebaceous gland
5. Activity of propioni bacteria
6. Inflammation



# Development of Problematic Skin

## Keratinocytes



- Keratinocytes are the predominant cell type in the epidermis
- The primary function of keratinocytes is the formation of a barrier against environmental damage such as pathogens (bacteria, fungi, parasites and viruses), heat, UV radiation and water loss.
- Keratinization is part of the physical barrier, in which the keratinocytes produce more and more keratin and eventually undergo programmed cell death. The fully cornified keratinocytes that form the outermost layer are constantly shed off and replaced by new cells.
- The average renewal / turnover time for the epidermis is 21 - 29 days.

# Development of Problematic Skin

## Development of Acne

### 1. Retention Hyperkeratosis

Retention	=	Hold onto
Hyper	=	Greek word meaning “more than”
Keratosis	=	An overgrowth of the stratum corneum. It refers to the rapid build-up of cells in the follicles and stratum corneum.

- This subsequent inability of the body to slough off those dead skin cells creates a tough, glue-like substance leading to follicular blockage.
- Studies have found that individuals suffering from acne lack the protease enzymes to break down the cellular glue between the dead skin cells that leads to the blockage. Since the follicle is blocked, it creates a “non-oxygenated” environment within the follicle.

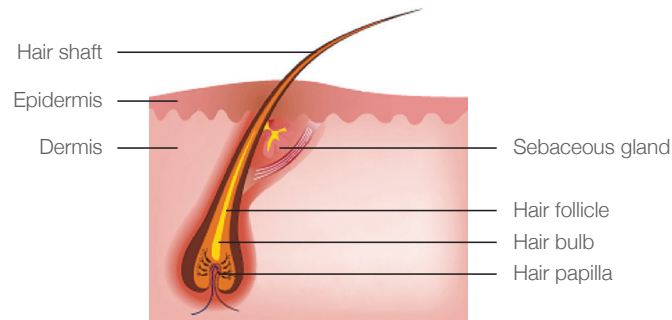


# Development of Problematic Skin

## The Pilosebaceous Unit

The pilosebaceous unit consists of:

- Hair
- Hair follicle
- Erector pili muscle
- Sebaceous gland



## Hair

- The hair found within the skin has many functions. With regards to acne, the main function of the hair is to act as a wick and to help carry skin oil and sweat to the surface of the skin.

## Hair Follicle

- The hair follicle is a skin organ that produces hair.

## Erector Pili Muscle

- This is a tiny bundle of muscle fibres called the erector pili.
- This muscle is responsible for causing the follicle to become more perpendicular to the surface of the skin causing it to protrude slightly above the surrounding skin.
- This process results in goose bumps.

## Sebaceous Glands

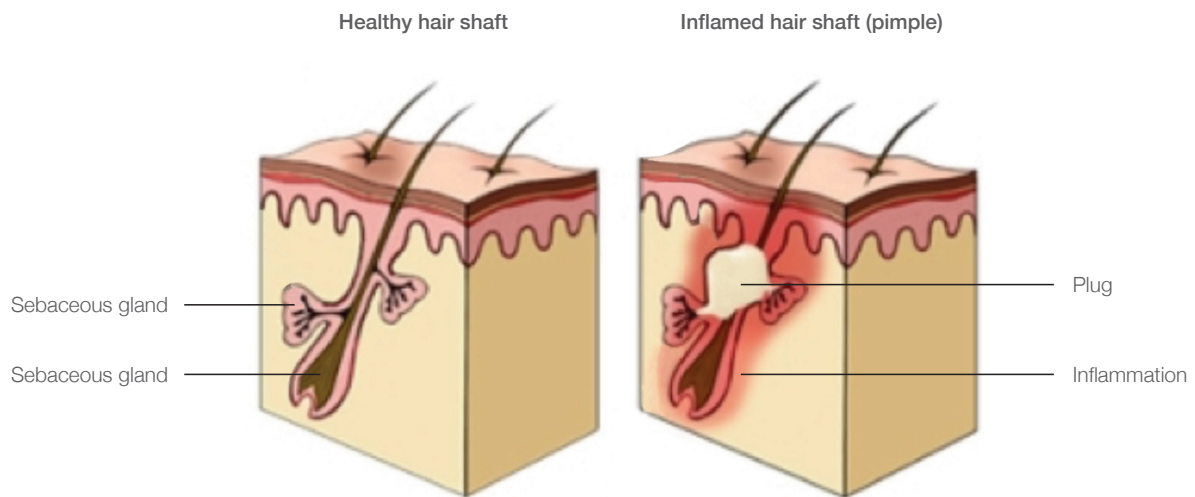
- Sebaceous glands are microscopic glands in the skin that secrete an oily/waxy matter called sebum which lubricates the skin and hair.
- They are found in greatest abundance on the face and scalp, though they are distributed throughout all skin sites except the palms of the hands and soles of the feet.
- The sebaceous gland is situated between the dermis and epidermis and works in synergy with both the layers.
- If the sebaceous gland does not produce enough sebum, the skin is dry. If it produces too much sebum, the skin is oily, resulting in a condition called seborrhea.
- If sebum gets trapped in the pore, acne can develop. The reason the sebaceous gland is one of the sites responsible for acne is not because of the oil that is produced within it, but because it is the site of inflammation.

# Development of Problematic Skin

## Development of Acne

### 2. Hair is absent or very weak

- The function of the hair with regards to the sebaceous gland is to act as a wick, carrying sebum and sweat to the surface of the skin.
- When the hair is absent or weak, it is unable to carry the sebum to the surface of the skin causing it to accumulate within the sebaceous gland.



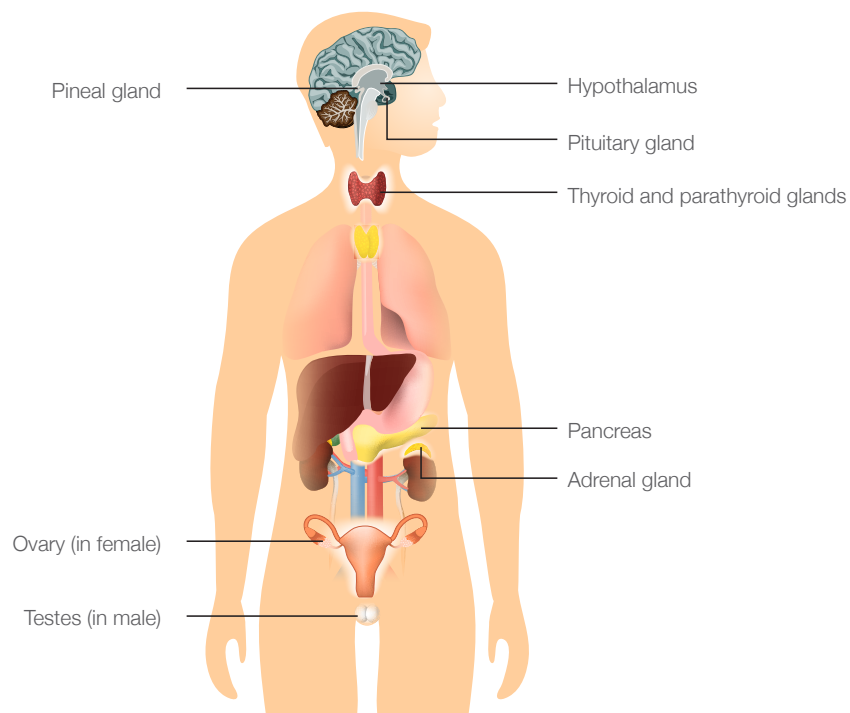
### 3. Sebum within the Sebaceous Gland is thicker and stickier

- Sebum is the natural oil that is produced in the sebaceous gland that makes the skin soft and waterproof.
- The sebaceous gland is enlarged by the androgen hormone - the larger the sebaceous gland, the more sebum it will produce.
- The oily sebum accumulates in the follicle.
- The sebum found within the follicle has higher levels of squalene and wax esters than normal, with lower levels of free fatty acids and linoleic acid.

# Development of Problematic Skin

## Hormones associated with Acne

- A hormone is a chemical released by a cell or a gland in one part of the body that sends out messages that affect cells in other parts of the body.
- They are produced in the endocrine glands.
- There are many endocrine glands in the body with the main ones being the pituitary gland, thyroid, thymus, adrenal glands and the pancreas. Hormones are dominant and it only requires a small amount of them to cause major changes throughout the body.
- Both men and women produce hormones in the same areas with one exception, the sexual organs. Additional male hormones are produced in the testes while women's are produced in the ovaries.
- Hormones work slowly and affect many of the body's processes over time.



# Development of Problematic Skin

Name of hormone	Where/origin	Contributes to acne
<b>Androgen</b>	<b>Androgen hormones</b> are a group of <b>hormones</b> that primarily influence the growth and development of the male <b>reproductive system</b> . The predominant and most active androgen is <b>testosterone</b> , which is produced by the male <b>testes</b> .	Androgen production stimulates sebaceous glands and causes them to enlarge. People who develop hormonal acne have overstimulated sebaceous glands. When hormonal changes occur, such as an increase in androgen production, the sebaceous gland and the inner lining of the skin within the hair follicle also changes.
<b>Oestrogen</b>	There is no one hormone called Oestrogen. Oestrogen is a class of 3 major hormones produced by women are: <ul style="list-style-type: none"> <li>■ Oestrone</li> <li>■ Oestradiol</li> <li>■ Oestriol</li> </ul> <p>In the body, these are all produced from androgen hormones through actions of enzymes. Oestrogen is the “female hormone” because it plays a key role in shaping the female body and preparing it for uniquely female functions.</p>	The relationship between <b>oestrogen</b> and <b>acne</b> is somewhat complex because <b>hormone</b> fluctuations in the normal female menstrual cycle can cause acne at different times.  Low levels of oestrogen and proportionally higher levels of androgen hormones generally cause oestrogen-related <b>cystic acne</b> . Hormone imbalances that decrease oestrogen levels or raise androgen levels will increase the likelihood of acne formation because they increase the amount of oil produced by the sebaceous glands under the skin’s surface.
<b>Progesterone</b>	Progesterone is a steroid hormone. It has a number of important jobs including normalizing blood sugar levels, facilitating thyroid hormone, regulating the menstrual cycle, allowing a woman to have a healthy pregnancy, as well as being a natural anti-anxiety and anti-depressant.	Having low progesterone in relation to oestrogen can lead to acne by way of increasing insulin which can lead to excess androgens, as well as amplify testosterone and DHT conversion in the skin.
<b>Testosterone</b>	Testosterone is a steroid hormone from the androgen hormones. Testosterone is primarily secreted in the testes of males and the ovaries of females, in smaller amounts.	Testosterone is very important for acne because it is what creates DHT (Di-hydrotestosterone). All DHT in the body is manufactured from testosterone using the 5-alpha reductase enzyme. No testosterone also equals no DHT.

# Development of Problematic Skin

Name of hormone	Where/origin	Contributes to acne
<b>DHEA</b> (De-hydroespiandrosteone)	DHEA De-hydroepiandrosterone (DHEA) is a hormone produced by the body's adrenal glands. The body uses DHEA to make androgens and oestrogens, the male and female sex hormones.	DHEA may increase the production of the male hormone testosterone. Women should be aware of the risk of developing signs of masculinization. These include loss of hair on the head, deepening of the voice, growth of hair on the face, weight gain around the waist, or acne.
<b>DHT</b> (Di-hydrotestosterone)	DHT (Di-hydrotestosterone) is an androgen or male sex hormone. DHT is synthesized from testosterone by the enzyme 5- alpha reductase in the sebaceous gland.	DHT is up to 10 times more potent than testosterone.  The enzyme called <b>5-alpha reductase</b> is responsible for this conversion. In an acne-prone skin, this enzyme is much more active. IGF-1 further stimulates this conversion and increases the severity of the acne condition.
<b>IGF1</b> (Insulin growth factor 1)	IGF-1 is a highly anabolic hormone that is most commonly associated with bodybuilders. IGF-1 helps to build muscle but like DHT, it can also cause high sebum production.	Having high levels of these hormones will lead to extremely oily skin, developing into blocked pores.

## Enzymes associated with acne

Enzymes are proteins that start or catalyse a chemical reaction. In enzymatic reactions, enzymes will attach themselves to a substrate, which are the molecules at the beginning of the process. During the enzymatic process, these substrates are converted into different molecules called a product.

Enzymes are specific with their substrates meaning that each substrate has a particular enzyme. Their activity is affected by temperature, chemicals and the concentration of the substrate.

### 5-alpha reductase

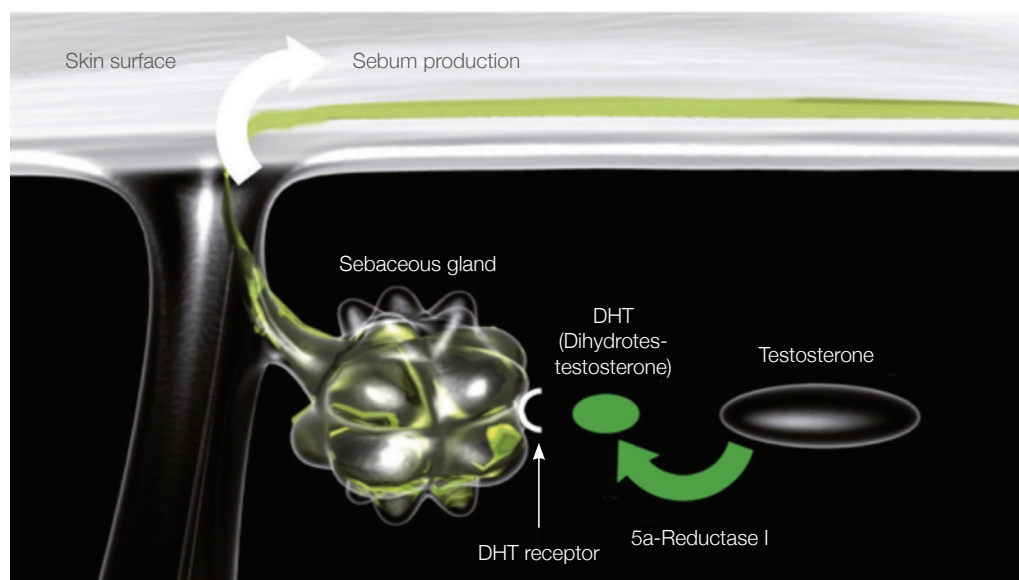
5-alpha reductase enzymes are found in the sebaceous gland. Its function is to convert testosterone into the more potent di-hydrotestosterone. This in turn stimulates sebum production in the sebaceous glands.

# Development of Problematic Skin

## Development of Acne

### 4. Effect of Androgen Hormones on the Sebaceous Gland

- The onset of acne is triggered by the production of androgen hormones, predominantly testosterone.
- Androgens stimulates sebaceous glands, causing them to enlarge.
- This creates more available space in which the sebum can be produced.
- Together with the 5-alpha reductase enzyme, converting testosterone into di-hydrotestosterone, more sebum is therefore produced in a larger sebaceous gland.



# Development of Problematic Skin

## Propionibacterium (p acnes)

- Propionibacterium is a relatively slow growing, typically anaerobic bacterium.
- This bacterium is largely communal and part of the skin flora present on healthy adult human skin. It is barely detectible on the skin of healthy pre-adolescents.
- It lives primarily on fatty acids in the sebaceous glands and sebum secreted by follicles.
- It may also be found throughout the gastrointestinal tract in humans and many other animals.
- It is named after its ability to generate propionic acid.



### Development of Acne

#### 5. Activity of Propioni Bacteria

- Propionibacterium exists on everyone's skin regardless of acne.
- This bacteria is an anaerobic bacteria, meaning that it cannot survive when exposed to oxygen.
- The blockage caused due to the retention hyperkeratosis creates a favourable environment for acne causing bacteria p acnes to survive and breed.
- Together with this is the hormonally induced overproduction of sebum trapped in the follicle resulting in a breeding ground for the bacteria to grow and thrive.

# Development of Problematic Skin

## Inflammation

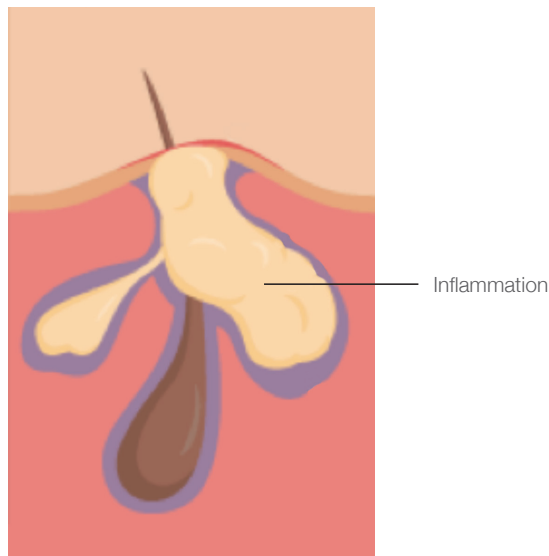
- Inflammation is a signal to the body to begin the healing process. Without it, wounds and infections would not heal.
- It's an important and necessary part of skin rejuvenation, but in chronic situations, inflammation becomes destructive.
- Skin inflammation can be characterized as acute or chronic.

### Development of Acne

#### 6. Inflammation

- As the follicle becomes filled with sebum, dead cells and bacteria, it begins to swell.
- The follicle wall ruptures and spills into the dermis. White blood cells rush in to fight the bacteria. Redness and swelling occurs and pus is created.
- A pimple has now formed.
- If the rupture in the follicle wall happens near the surface, the pimple is usually minor and heals quickly.
- It is when the rupture occurs deep within the dermis that more severe lesions, such as nodules and cysts, develop.

Skin with acne



# Causes of Problematic Skin

The primary cause of acne is still unknown. Some of the crucial factors that may aggravate acne include hormonal changes, medication, diet, evolutionary biology and possibly stress. Acne can appear on the skin in the form of pimples, blackheads, congested pores, or cysts. In order to gain a better appreciation of how to reduce and prevent the symptoms of acne, we need to look at a number of related underlying factors that contribute to the development of the condition.

Some of the factors believed by experts to be involved with contributing to acne development include:

## Hormonal Changes

- Acne, by its very nature, can be considered a hormonal disease. Primarily, hormones cause sebaceous glands present in the skin to change. This is the reason why acne does not happen in children. Hormone imbalances happens during puberty, pregnancy or menopause. During these periods, acne breakouts are caused due to androgen and testosterone hormones present in the body. The oil build up created by these hormones may be instrumental in clogging hair follicles where bacteria grows and causes acne pimples and blemishes.

Key hormonal changes

### - Puberty

During puberty in both sexes, the androgen hormone levels generally increase, resulting in an increase in sebum production and enlarged sebaceous glands. This is the perfect environment in which the p acne bacteria can multiply and thrive.

The IGF1 hormone (Insulin growth factor 1) also increases. This a growth hormone that builds muscle, but a high level of IGF1 causes an increase in sebum production and blocked pores.

In females, the oral contraceptive is generally prescribed to balance and enforce hormone regularity.

### - Pregnancy

The body goes through many changes during pregnancy including the surge of hormones. There is an increase in the female hormones, oestrogen and progesterone, and the androgen hormones may also increase. The result is an acne condition during pregnancy, predominantly during the first three months (first trimester) when hormone levels are fluctuating the most. However, it is possible to experience breakouts at any time during pregnancy, or after pregnancy.

For a female who is typically acne prone, their skin condition may become worse.

Breakouts may also be experienced for the first time during pregnancy due to the increase in the level of androgen hormones in the body.

Blackheads, pustules and cysts may develop on the face, although body acne may also develop.

# Causes of Problematic Skin

## - Menopause

During menopause, there is a significant decrease in oestrogen levels creating a hormonal imbalance. This is a primary reason why women see a re-emergence of hormonal acne after decades of clear skin. Areas of the skin most affected are the chin, jawline and mouth, although the chest and back may also be affected.

During menopause, with the decline of the female hormones, the androgen hormones remain constant, with testosterone levels possibly rising. This results in the body experiencing more of the effects of the male hormones and may trigger the onset of menopausal acne.

The sebaceous glands are stimulated to produce excess sebum and the condition is further aggravated by the slowed-down cell regeneration in mature skin. Retention hyperkeratosis increases, causing the skin blockages. This results in inflammation, infection and acne.

- Another hormonal form of acne that may occur is **PCOS (Polycystic Ovarian Syndrome)**. This is not typical in terms of hormonal changes that women generally go through, but many women do go through this hormonal disorder that can cause acne.

PCOS occurs when the ovaries in females become enlarged with cysts developing on them, causing a hormonal imbalance. This may result in symptoms such as irregular menstrual cycles and ovulation, weight gain, infertility, thinning hair or hirsutism and also acne in hormonally sensitive areas such as lower third of the face.

Additionally, testosterone levels also increase which triggers the excessive release of oil. Excess oil secretions, together with a build-up of dead skin cells and other particles, lead to blocked follicles and breakouts.

## Medication

- There are a number of medications that are known to cause acne or aggravate acne. These include:-
  - Certain types of birth control pills
  - Anti-depressants
  - Anabolic steroids
  - Medication that contain lithium and iodine
  - Isoniazid and rifampin
  - Certain anti-epileptic medications can contribute to or further aggravate acne.

## Chemicals

- Chlorinated industrial chemicals can create a skin disorder called chloracne, which is actually a type of rash that is caused by exposure to chlorinated industrial chemicals or herbicides.

# Causes of Problematic Skin

## Physical Pressure or Friction

- This type of acne is called acne mechanica and occurs when the skin is exposed to heat, undergoing repetitive friction, covered for a long period of time or is under excess pressure.

Examples of this are:

- Tight or synthetic clothing, which keeps on rubbing against the skin, not allowing it to breathe properly
- The pressure of heavy backpacks on the shoulders of a person.
- Musicians who tuck musical instruments around the neck area for long periods of time. Acne may occur below the ear.
- Soldiers wearing uniforms throughout the day and carrying heavy loads on their back or performing high activity jobs. These soldiers usually operate in extreme temperatures where the heat and humidity, when combined with pressure and friction caused by these activities, aggravates the condition of the skin resulting in inflammation and breakout.
- Factory employees performing repetitive tasks that may irritate the skin.
- Athletes or sport players wearing tight headbands, shoulder pads or helmets that may irritate or rub against the skin. Hockey players, football players, soccer players, runners and motorcycle riders usually becomes victim of this type of acne.
- Swimmers wearing tight swimming suits.
- Men and women wearing tight garments or under garments made up of synthetic material. These include bras with tight straps that bite into the skin, jeans, tight underwear etc.
- People living in cold countries who wear tight fur caps for long periods of time in order to protect themselves from cold temperatures.
- Sticky tapes that remain on the skin for several days.

## Genetics

- Heredity can perhaps be one of the reasons behind acne breakouts. If a parent is prone to severe acne for a long time then it is probable that the child might have the same problem at some point of life. Although acne is not strictly an inherited condition, some studies have demonstrated that many adolescent children with acne come from families that at some time had also suffered from the disorder.

## Pollution

- Dirt, dust, oils, humidity and pollution in the environment can clog pores and worsen acne.

## Cosmetics

- A number of fragrances commonly found in cosmetics such as ambrette, musk, bergamot and cinnamate are known to be acne triggers. Dyes found in many cosmetics including blushers are derived from coal tar and are also known to be comedogenic. Many cosmetics contain oils which contribute to blocked pores. Look for products labeled “non-acnegenic” or “non-comedogenic”. These cosmetics are often tested on volunteers with oily skin.

# Types of Acne

Acne is a condition that affects individuals of all ages, genders, and races. Acne knows no boundaries. It affects men, women, adults, teens and even babies.

## Infantile Acne

- Infantile acne, also known as baby acne, is not uncommon.
- It occurs in babies anywhere from two weeks old to four or five month of age. It is intermittent, meaning you will see it come and go.
- The cause of baby acne has been linked to the maternal hormones which are passed on to the baby from the mother through the placenta.
- It is not uncommon for children experiencing baby acne to also experience teen or adult acne.

## Teen acne

- Generally speaking, teenagers are more prone to having problems with acne due to the hormones associated with this time of life.
- Androgen hormones stimulate the onset of puberty as well as stimulate the sebaceous glands. After puberty, boys produce 10 times as much androgen as girls.
- Therefore, more boys tend to develop severe cases of acne than girls, but that does not mean that some girls won't develop a severe case.
- The formation of acne in teens most often starts at around age 11 for girls and 13 for boys and if both parents suffered from acne as a teenager, there is more of likelihood that their teen will experience it.

## Adult / Mature Acne

Adult acne may occur in women and some men over the age of 20. Some people complain of acne breakouts for the first time. Others with the problem see it as a continuation of their "teenage acne years".

There are many reasons why adults will develop acne, all relating to hormones:

- **Menstruation** - Often, a woman's adult acne will revolve around her menstrual cycle and pimples will develop a few days before the onset of her period. The reason for this is that during this time, a woman's oestrogen levels are decreasing while her progesterone levels begin to rise. This causes the sebaceous glands to produce more oil, which can result in the onset of pimples.
- **Pregnancy** - It is very common for adult acne to present itself during pregnancy with the changes in hormones. Acne is often at its worst during the first three months of pregnancy, when hormones are fluctuating. However, it is possible for acne to last throughout the entire pregnancy and to continue into the breastfeeding period.
- **Polycystic Ovarian Syndrome** - It is one of the most commonly misdiagnosed conditions in women. The condition affects 6 - 10% of all women. Women suffering from Polycystic Ovarian Syndrome suffer from substantial hormone imbalances. When these hormone imbalances are treated, the acne often resolves itself.
- **Menopause** - It is not common but the first onset of acne may be experienced during the 40's, 50's and beyond. When acne develops at this stage, it's usually mild, but it can still be a cause of embarrassment and annoyance.

# Acne Lesions and Grades of Acne

## Acne lesions

### Comedo

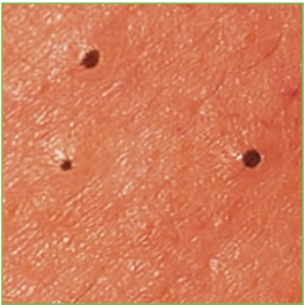
Pore partially blocked-blackhead  
Pore completely blocked-whitehead

**Nimue product recommendations:**

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### Papule

Papules are small solid lesions that elevates above the skin surface. Some can be almost non-existent but give the skin a sandpaper like feel whereas others appear as small red or pink solid bumps on the skin. This is a localized acne based reaction and is caused by the build-up of bacteria, dead cells and oil within the pores. Unlike comedones, papules do not contain pus and should not be squeezed because it could result in increased infection, scarring and generally make acne worse.

**Nimue product recommendations:**

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### Pustule

Pustules are lesion-like papules, but they contain pus and appear similar to whiteheads. They are often red, inflamed and have a white or yellowish head. This pus is made up primarily of white blood cells, bacteria and dead skin. Squeezing a pustule can also result in further spreading of the bacteria and acne scarring.

**Nimue product recommendations:**

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# Acne Lesions and Grades of Acne

## Nodule

Nodules are large solid lumps, much bigger than papules and are lodged deep under the skin. They can be quite painful and should not be squeezed. Nodules take a long time to heal and require prescription acne drugs to be treated properly. This type of lesion usually accompanies more severe forms of acne.

**Nimue product recommendations:**

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## Cyst

Cysts are the progressed form of a pustule. These lesions contain the same material that creates pus, however they are larger and are usually accompanied by inflammation and normally extend deeper under the skin. This type of lesion is formed with severe acne and may result in pain and scarring. Once again, do not squeeze a cyst. Doing so will only spread the infection, cause acne scarring and extend the healing period.

**Nimue product recommendations:**

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## Milium

Milium in plural form milia, are also known as a milk spot or an oil seed. Milium is a keratin-filled cyst that is trapped just under the epidermis or on the roof of the mouth. Milia are commonly associated with newborn babies but can appear on people of all ages. In children milia often disappear within two to four weeks. In adults they may need to be lanced.

**Nimue product recommendations:**

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# Acne Lesions and Grades of Acne

## Acne Grades

Analysing the grade of the acne will assist in the selection of the most effective treatment. Acne is categorized into four grades of severity determined by visual inspection. If the mild grades of acne are left untreated it can progress to the more severe grades.

### Grade One - Acne Prone

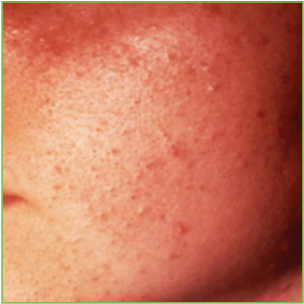
This is the mildest form of acne. It is often just a minor pimple that appears occasionally in small numbers and small bumps that can disappear without being treated. These are your common blackheads that suffer no inflammation or reddening and are most often seen in adolescents on the nose and forehead.

**Nimue product recommendations:**

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### Grade Two - Active Acne

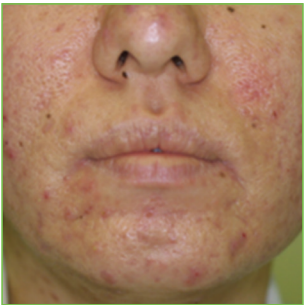
This is moderate acne. Comedones and milia can break out in greater numbers. They can come in the form of larger papules, with some appearing as large pustules with slight inflammation becoming obvious. The breakouts now appear not only on the nose and forehead, but also on the cheeks, chin and jaw.

**Nimue product recommendations:**

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### Grade Three - Active Acne

This is considered severe and is often grade two left untreated and made worse by squeezing the pimples and proliferating the bacteria. The main difference is the level of inflammation. A skin with grade three acne exhibits more profuse reddening and a greater number of inflamed papules and pustules. In this grade infection spreads and becomes deeper and the risk of scarring becomes highest.

**Nimue product recommendations:**

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# Acne Lesions and Grades of Acne

## Grade Four - Acute Acne

This is the most serious grade of acne. This is grade three if left untreated.

Medically referred to as nodulocystic or cystic acne where the skin displays numerous pustules, papules, pustules, with large cysts.

There is severe inflammation, redness and pain as cystic acne is very painful. Often the infection spreads beyond the face and into the neck, shoulders and upper arms. The deep infection makes scarring inevitable and may even require cosmetic surgery to restore a decent looking skin.

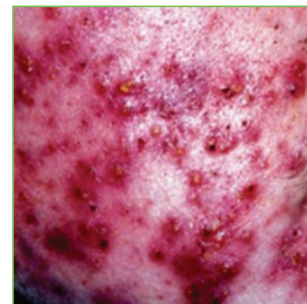
Medication is usually required and we are unable to treat this condition apart from treating the side-effects of the medication administered.

### Nimue product recommendations:

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# Acne Myths

## Acne Myths

Acne myths tend to run as rampant as acne itself. Clients may get reliable information online as well as from friends, however there's also a great deal of misinformation available. Unfortunately, some acne myths can be dangerous, but even if the incorrect acne advice isn't harmful, it can still stall the progress in treating the condition.

### Eating badly causes acne

- It is an old myth that greasy food, chocolate, cake, pastries etc., are the cause of acne, but medical science has disputed this fact.

### Poor hygiene causes acne

- People suffering from severe acne are sometimes under the misguided impression that it is due to their lack of hygiene, that they “contracted” acne and they then go forth and clean with such vigor that they damage and stress their skin even more.
- Although hygiene and regular cleansing is paramount to prevent the spread of infection - it is not normally the lack of hygiene which causes acne vulgaris as such.

### Wearing moisturiser causes spots

- Moisturiser helps to balance oil production on the skin, keeping the skin hydrated. By not wearing a moisturiser, the skin dries out, tricking the sebaceous glands to produce more oil.
- Always wear a noncomedogenic moisturiser in the morning and evening to keep the skin well hydrated.

### Removing blackheads and whiteheads prevents acne

- This is an absolute myth and the opposite is actually true.
- Incorrect extraction of blackheads and whiteheads can give rise to acne and spread the infection.
- Squeezing or picking at blackheads and whiteheads can also hurt the surrounding tissue which can result in permanent scarring.

### Acne is contagious

- Acne is not contagious. It is impossible to “catch” acne by shaking hands, touching, or even kissing someone with acne.
- None of the factors responsible for acne can be caught from someone else.

# Acne Myths

## Tanning cures acne

- Tanned skin might give a so-called “healthy” glow in the short term, but it’s almost certain to wreak havoc on your skin’s health - especially on acne. Along with increasing risk for skin cancer down the road, Sunbathing dries out the skin, tricking the sebaceous glands to produce more oil.

## Scrubs are great for acne

- Harsh, over-the-counter scrubs will do more to irritate the skin than heal it.
- Many exfoliants sold in the local drugstore and even in high-end shops are made using apricot pits, walnut shells or other abrasive ingredients, which can cause tiny tears in the skin, increasing the risk for bacterial infections, breakouts and even permanent scarring.

## Sweating cleans out pores

- Exercising is great for your health, but vigorous exercise stimulates oil production. This, combined with heat, perspiration and friction, can aggravate acne on the forehead, chest, back and elsewhere on the body.

# Medically prescribed treatments

## Medically Prescribed Acne Treatments

Often, we see clients that have a great number of inflammatory papules and / or cystic lesions, which we refer to as grade four cystic acne. These clients need a more aggressive treatment approach other than just skin products. They need to seek medical attention from a dermatologist, or a medical doctor who specializes in the science of skin, its treatment and diseases. A dermatologist can offer many suggestions for treatment of grade four acne and develop a treatment plan that can include topical and systemic medications.

### Systemic Acne Treatment

Systemic treatments are taken orally in the form of a pill or injected into the skin. Systemic treatments are used in the case of moderate acne, when topical treatments are not enough, as well as for severe and cystic acne. Systemic treatments are available by prescription only and are often used in conjunction with topical treatments. Systemic acne treatments include oral antibiotics, hormonal treatments and isotretinoin.

#### Antibiotics

Antibiotics work by decreasing the number of bacteria in and around the follicle and they reduce the irritating chemicals produced by white blood cells. Antibiotics also reduce the concentration of free fatty acids in the sebum, reducing the inflammatory response.

Some of the common antibiotics used to treat acne are:-

- **Tetracycline** - Most widely prescribed antibiotic for acne.  
Side effect is candida. Not recommended to be used during pregnancy.
- **Erythromycin** - Erythromycin is a very commonly used antibiotic for acne. It has anti-inflammatory properties that help reduce redness in lesions, in addition to killing bacteria.  
Side effects are stomach irritation and nausea. May be used during pregnancy.
- **Minocycline** - Minocycline is a tetracycline derivative that has been used effectively for decades as a treatment for acne. It is especially useful for pustular type acne.  
Side effects are dizziness, nausea and skin pigmentation changes.
- **Doxycycline** - Doxycycline is often used for people who do not respond to or cannot tolerate erythromycin or tetracycline.  
Side effect is sun sensitivity within the skin.
- **Clindamycin** - Clindamycin is very useful as an oral antibiotic for acne, but it is most widely prescribed as a topical antibiotic.  
Side effect is intestinal candida.

After the acne has cleared, the client may remain on the medication for another 3 months to ensure that another breakout will not occur.

# Medically prescribed treatments

## Hormone Therapy

Women who suffer from acne have more free androgens in their blood. The goal of hormone treatment is to decrease these free flowing androgens. Once androgen makes contact with the oil producing glands, the overproduction of oil takes place immediately causing the whole acne process to begin. All therapies have their own share of risks and benefits. Before going onto hormone therapy for acne, it is important to check for Polycystic Ovarian Syndrome. Female acne is one of the main side effects.

The following are commonly used as hormone therapy for the treatment of acne:-

### ■ Oral Contraceptives

The oral contraceptive pill, OCP, is the keystone of hormonal therapy. The OCP contains a hormone called progestin and works by lowering androgenic activity in the body.

### ■ Oral Corticosteroids

Oral corticosteroids, such as prednisone and dexamethasone may help improve acne by decreasing androgen production in the adrenal gland.

## Isotretinoin

Isotretinoin is recommended for people suffering with severe grade four cystic acne. It is known as the “silver bullet” for acne treatment and must be the last resort. Isotretinoin is a potent form of vitamin A and is a drug that must be taken seriously due to its potential side effects. It is advised not to be recommended for mild acne.

Oral isotretinoin is marketed under various trade names, the most common ones being Accure, Accutane, Acnotin, Aknenormin, Amnesteem, Atretin, Ciscutan, Claravis, Clarus, Decutan, Isotane, ISOTRET, Isohexal, Istretinoin-A Izotek Nimegen, Oratane, Roaccutane, Ruatine or Sotret.

## Precautions

- Isotretinoin makes the skin sensitive to sunlight. Avoid unnecessary or prolonged exposure to sunlight and wear protective clothing, sunglasses and sunscreen.
- Isotretinoin may cause intracranial hypertension, especially when it is taken with tetracycline. Intracranial hypertension is a condition caused when the pressure in the blood vessels of the brain increase or when the brain swells. Symptoms of intracranial hypertension include severe headache, upset stomach, vomiting and changes in vision.
- While taking Isotretinoin and for 6 months after, avoid hair removal by waxing and laser procedures.

# Medically prescribed treatments

## Side effects

- Isotretinoin is taken for 3 - 6 months, but side effects can last even one to two months after treatment is stopped. Common side effects experienced are:
  - Cheilitis - a medical condition involving inflammation of the lip.
  - Chapped, flaky skin
  - Dry nose and eyes
  - Loss of hair - 10% of patients
  - Painful joints and muscles
  - Excessive peeling of the palms and soles - 25% of patients
  - Abnormal liver function tests - 15% of patients
  - Arthralgias - joint pain
  - Decreased night vision
  - Inflammatory bowel disease
  - Degenerative disc disease
  - Keloids
  - Bone disease
  - Rosacea
  - Stunted growth in height
  - Teratogenicity (birth defects)
  - Depression
  - Crohn's disease

## Dosage

- The dose of isotretinoin patients receive is dependent on their weight and the severity of the condition.

# Medically prescribed treatments

## Topical Treatment of Acne

Topical antibiotics work by killing the *Propionibacterium acne* bacteria. This not only helps reduce the infections in the pores, but also indirectly keeps the pores open. Topical antibiotics have been around for a while without many changes to the formulations. A topical treatment is commonly used if the acne is mild to moderate in severity. It is normal to take up to four weeks for there to be any noticeable improvement in the skin.

The therapeutic methods can be divided into three major categories:

- To reduce surface sebum
- To reduce cornification
- To reduce inflammation

### Types of Topical Treatment:

- **Benzoyl Peroxide** - This is a common topical treatment. It has three actions - it kills bacteria, reduces inflammation and helps to unplug blocked pores. It comes in different brand names and strengths - 2.5%, 4%, 5% and 10% strength.

Side effects are drying of the skin and irritation.

- **Retinoids** - The action with retinoids is to unplug blocked pores. They include adapalene, tretinoin and isotretinoin which come in various brand names. They also have some effect on reducing inflammation. Retinoids are often used early on in the development of acne to help unblock pores and to treat comedones and mildly inflamed spots. A prescription is needed for all retinoid preparations.

Precautions

- Skin redness and skin peeling may develop.
- Skin may be more sensitive to sunlight therefore best to apply at night and wear sun protection daily.

Side effects are burning, irritation and dryness.




- **Azelaic Acid** - This is an alternative that mainly works by unplugging blocked pores. Therefore, like retinoids, it assist in clearing blackheads and whiteheads. It has some effect on reducing inflamed acne. It may cause less skin irritation than benzoyl peroxide.

- **Topical Antibiotics** - There are various topical antibiotic preparations. They reduce the number of bacteria and reduce inflammation. However, they have little effect on unplugging blocked pores. Although they are usually effective in treating inflamed acne, blackheads and whiteheads may remain.

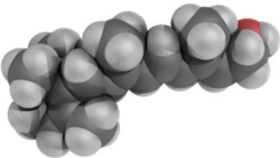


Side effect is mild irritation.

# Retail Problematic Ingredients and Products





## Nimue Problematic Ingredients - Retail

Active ingredient	Key function	Benefit	Nimue product
<p><b>Allantoin</b></p> 	<ul style="list-style-type: none"> <li>■ Healing</li> <li>■ Soothing</li> <li>■ Skin rejuvenation</li> <li>■ Moisturizing</li> <li>■ Soothing</li> <li>■ Anti-irritating</li> </ul>	<ul style="list-style-type: none"> <li>■ Allantoin is a valuable cell healing agent which stimulates healthy tissue formation</li> </ul>	
<p><b>Argan Oil</b></p> 	<ul style="list-style-type: none"> <li>■ Nourishing</li> <li>■ Regenerating</li> </ul>	<ul style="list-style-type: none"> <li>■ Rich in essential fatty acids, especially linoleic acid</li> <li>■ A precursor of vitamin E, giving its moisturizing, strong antioxidant and skin anti-ageing properties</li> </ul>	
<p><b>Amphoteric Glycolic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ High penetrative capacity</li> <li>■ Hydrating properties</li> </ul>	<ul style="list-style-type: none"> <li>■ The amphoteric system is the creation of a “new” delivery system for glycolic acids, ie, slow released.</li> <li>■ The “actives” are still the same as before however, because they are available to the skin over a certain period, the potential irritation is eliminated.</li> <li>■ Small molecular weight and size</li> </ul>	


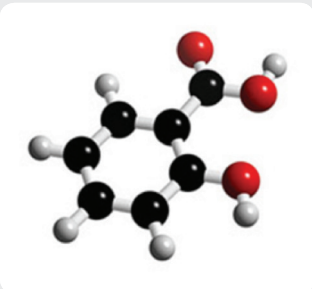
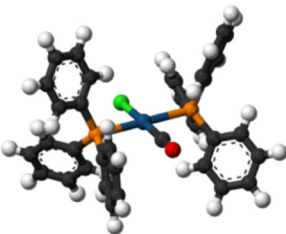

# Retail Problematic Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>Encapsulated Retinol</b> (Retinol is the primary natural occurring form of Vitamin A. A weaker retinoid than retinoic acid, retinol converts to retinoic acid once on the skin.)</p> 	<ul style="list-style-type: none"> <li>■ Improves cell renewal</li> <li>■ Epidermal and dermal thickness</li> </ul>	<ul style="list-style-type: none"> <li>■ Based on a delivery system of encapsulated retinol that ensures stabilisation of the molecule without oxidation and enhanced cutaneous absorption of Vitamin A.</li> </ul>	
<p><b>Encapsulated Tea Tree Oil</b> (Tea tree oil in the form of microencapsulation in a cyclodextrin base.)</p> 	<ul style="list-style-type: none"> <li>■ Enhanced anti-bacterial action</li> <li>■ Reduction of papules and pustules</li> </ul>	<ul style="list-style-type: none"> <li>■ The benefits of having the cyclodextrin in the system is that once the Tea Tree Oil has been deposited and used by the skin, the cyclodextrin absorbs excess sebum and is then rinsed off when cleansing the skin.</li> <li>■ Because of the slow release, the Tea Tree Oil is protected against oxidation.</li> <li>■ It has a more pleasant odour.</li> </ul>	
<p><b>Encapsulated Vit A, C, E</b></p> 	<p>Increased stability and penetration ingredients</p> <ul style="list-style-type: none"> <li>■ Vitamin A: epidermal thickness</li> <li>■ Vitamin C: anti-oxidant</li> <li>■ Vitamin E: healing</li> </ul>	<ul style="list-style-type: none"> <li>■ Vitamins and Borage oil are incorporated into liposomes from phospholipids which are easily absorbed by the cell membranes into the cells of the skin.</li> <li>■ Borage oil is dispersed to fine droplets and lipidic vitamin esters are dissolved in the core.</li> <li>■ The liposomes then easily penetrate into the lipid matrix of the stratum corneum where they break and start to release the incorporated actives.</li> </ul>	

# Retail Problematic Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>Enzymes</b></p> 	<ul style="list-style-type: none"> <li>■ Digests bonds between corneocytes</li> <li>■ Accelerate natural exfoliation</li> <li>■ Unblocks pores</li> </ul>	<ul style="list-style-type: none"> <li>■ Enzymatic exfoliator to promote desquamation of stratum corneum cells.</li> </ul>	
<p><b>Kaolin</b></p> 	<ul style="list-style-type: none"> <li>■ Increased stability and penetration of active substances</li> <li>■ Vitamin A: epidermal thickness</li> <li>■ Vitamin C: anti-oxidant</li> <li>■ Vitamin E: healing</li> </ul>	<ul style="list-style-type: none"> <li>■ Reduce production of sebum</li> </ul>	
<p><b>Lacto Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Oily skin: reduce sebaceous activity</li> <li>■ Dry skin: increase sebaceous activity</li> </ul>	<ul style="list-style-type: none"> <li>■ Balance sebaceous gland function in oily or dry skin</li> </ul>	
<p><b>Neem Seed Oil</b></p> 	<ul style="list-style-type: none"> <li>■ Anti-bacterial</li> </ul>	<ul style="list-style-type: none"> <li>■ Restore skin function and have potent anti-bacterial activity</li> </ul>	

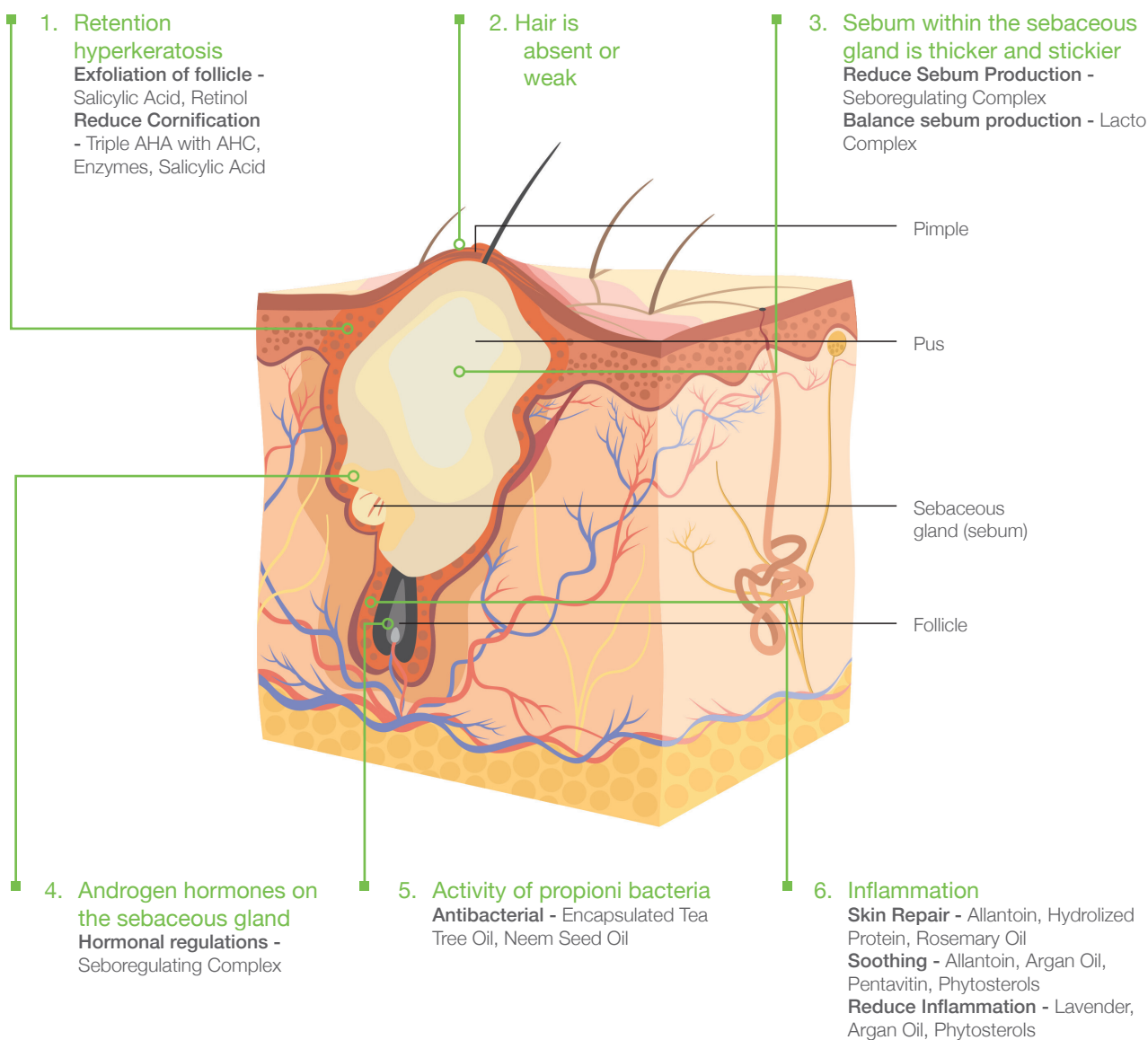
# Retail Problematic Ingredients and Products

Active ingredient	Key function	Benefit	Nimue product
<p><b>Shea Butter</b></p> 	<ul style="list-style-type: none"> <li>■ Healing</li> <li>■ Nourishing</li> </ul>	<ul style="list-style-type: none"> <li>■ Shea butter also contains vitamin A and E has high content of unsaponifiables and phytosterol, which have antimicrobial properties.</li> </ul>	
<p><b>Salicylic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Exfoliates skin cells and oil in the pilosebaceous unit</li> <li>■ Anti-inflammatory</li> </ul>	<ul style="list-style-type: none"> <li>■ Exfoliating agent referred to as beta hydroxyl acid (BHA)</li> </ul>	
<p><b>Seboregulating Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Inhibition of 5 alpha reductase</li> <li>■ Reduce sebum production</li> <li>■ Anti-bacterial</li> <li>■ Anti-oxidant</li> <li>■ Anti-lipase activity</li> </ul>	<ul style="list-style-type: none"> <li>■ A multifunctional complex with 5 modes of action to restore over active sebaceous ability in oily and acne prone skin.</li> </ul>	
<p><b>Amphoteric Triple AHA Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Slow release AHA's</li> <li>■ Exfoliation</li> <li>■ Collagen synthesis</li> <li>■ Skin lightening</li> </ul>	<ul style="list-style-type: none"> <li>■ The amphoteric system is the creation of a "new" delivery system for the AHA's (Glycolic and Lactic Acid), i.e, slow release.</li> <li>■ The "actives" are still the same as before however, because they are available to the skin over a certain period the potential irritation is eliminated.</li> </ul>	

# Retail Problematic Ingredients and Products

## Direct effect on Acne development

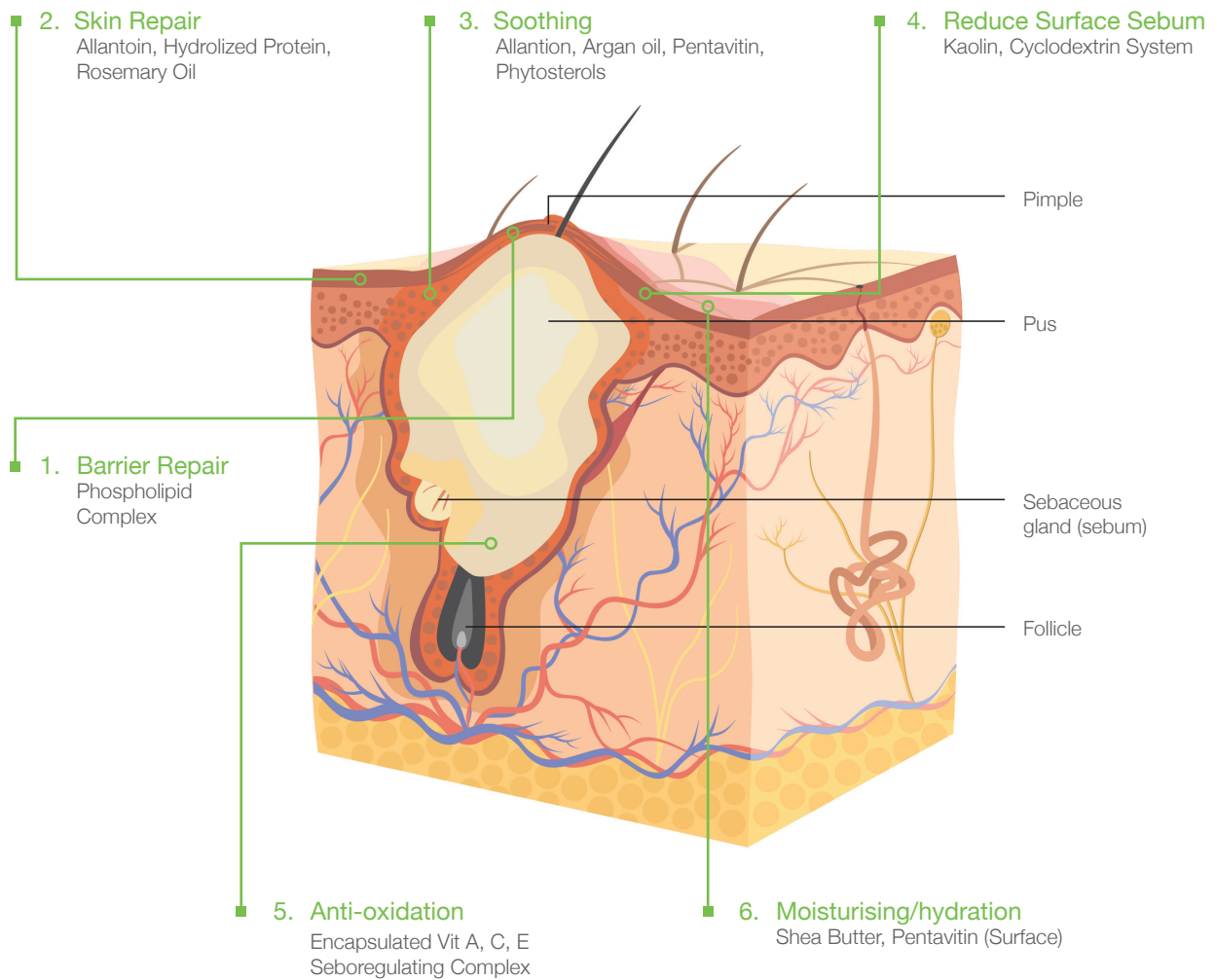
1. Retention hyperkeratosis
2. Hair is absent or very weak
3. Sebum within the sebaceous gland is thicker and stickier
4. Effect of androgen hormones on the sebaceous gland
5. Activity of propioni bacteria
6. Inflammation



# Retail Problematic Ingredients and Products

## Indirect effect on Acne development

1. Barrier Repair
2. Skin Repair
3. Soothing
4. Reduce Surface Sebum
5. Anti-oxidation
6. Moisturising / hydration





Cleansing Gel	140ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>■ Soap-free, creamy gel cleanser</li> <li>■ Gently hydrates</li> </ul>		<ul style="list-style-type: none"> <li>■ 1.4% Triple AHA Complex</li> </ul>	



Conditioner	140ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>■ Improves texture</li> <li>■ Degreasing and deep cleansing</li> <li>■ Anti-bacterial and anti-inflammatory</li> </ul>		<ul style="list-style-type: none"> <li>■ 7% Triple AHA Complex</li> </ul>	



Nimue Day	50ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>■ Reduces fine lines and wrinkles</li> <li>■ Improves hydration and barrier protection</li> </ul>		<ul style="list-style-type: none"> <li>■ 0.5% Triple AHA Complex</li> <li>■ 3% Lacto Complex</li> </ul>	



Day Fader	50ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>■ Improves skin colour and texture</li> <li>■ Regulates new pigment formation</li> </ul>		<ul style="list-style-type: none"> <li>■ Skin Brightening Complex</li> <li>■ 5% Bearberry Extract</li> <li>■ 5% Botanical Blend</li> </ul>	



Purifier	50ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>■ Treatment of problematic skin without drying the skin</li> <li>■ Controls infection</li> <li>■ Regulates oil activity</li> </ul>		<ul style="list-style-type: none"> <li>■ 5% Amphoteric Triple AHA Complex</li> <li>■ Encapsulated Retinol</li> </ul>	 <small>spot application</small>



Moisturiser Lite	50ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>■ Balances oil production</li> <li>■ Hydrates, improves softness and suppleness of skin</li> </ul>		<ul style="list-style-type: none"> <li>■ 2.5% Multi Fruit Acid Complex</li> <li>■ 6% Lacto Complex</li> </ul>	

# Problematic Products



Exfoliating Enzyme	60ml	Main Ingredients	pH 5.5
<ul style="list-style-type: none"> <li>Non-irritating, non-abrasive enzymatic exfoliation</li> <li>Refines skin texture</li> </ul>		<ul style="list-style-type: none"> <li>Papaya Enzymes</li> <li>Pineapple Enzymes</li> </ul>	



Element Barrier	20ml/100ml	Main Ingredients	pH 6.0
<ul style="list-style-type: none"> <li>Moisturises the stratum corneum</li> <li>Reduces sensitivity to UV radiation, Infra-red and inflammation</li> </ul>		<ul style="list-style-type: none"> <li>Complex of Phyto-ceramides-6</li> <li>Artemia Salina Extract</li> </ul>	



SPF 40	60ml	Main Ingredients	pH 6.5
<ul style="list-style-type: none"> <li>Lightweight, non-oily and non-whitening emulsion</li> <li>Protection against UVA/UVB</li> <li>Anti-ageing benefits</li> </ul>		<ul style="list-style-type: none"> <li>Inorganic Physical Sunscreen</li> <li>Organic Chemical Sunscreen</li> </ul>	



Tinted SPF 40	60ml	Main Ingredients	pH 6.5
<ul style="list-style-type: none"> <li>Protection against UVA/UVB</li> <li>Reduces the appearance of dark areas, pigment spots and redness</li> <li>Available in 3 shades: light, medium, dark</li> </ul>		<ul style="list-style-type: none"> <li>Inorganic and Organic Sunscreens</li> <li>Colour pigments</li> </ul>	



Environmental Shield SPF 50	20ml/50ml	Main Ingredients	pH 7.5
<ul style="list-style-type: none"> <li>Protection against UV (SPF 50), IR and HEV</li> <li>Stops ROS formation</li> <li>Protection against pollution</li> </ul>		<ul style="list-style-type: none"> <li>Fused Ring Cyanoacrylate</li> <li>Environmental Shield Polymer</li> <li>65% Zinc Oxide Dispersion</li> </ul>	



Active Lotion	60ml	Main Ingredients	pH 3.5
<ul style="list-style-type: none"> <li>Exfoliation and renewal</li> <li>Improvement in skin texture</li> </ul>		<ul style="list-style-type: none"> <li>10% Amphoteric Triple AHA Complex</li> </ul>	



Active Gel	60ml	Main Ingredients	pH 3.5
<ul style="list-style-type: none"> <li>Exfoliation, reduction in surface oil</li> <li>Anti-inflammatory, anti-bacterial</li> <li>Improvement in skin texture</li> </ul>		<ul style="list-style-type: none"> <li>10% Triple AHA Complex</li> </ul>	



Corrective Serum	30ml	Main Ingredients	pH 4.0
<ul style="list-style-type: none"> <li>Regulates sebum &amp; breakout control</li> <li>Purifies/clarifies skin, controls breakout, promotes skin healing</li> <li>(Transitional period, phase 1)</li> </ul>		<ul style="list-style-type: none"> <li>Seboregulating complex</li> <li>Lacto Complex</li> <li>Salicylic Acid</li> </ul>	



Problematic Spot Treatment (Adult Spot Treatment)	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Controls breakouts</li> </ul>		<ul style="list-style-type: none"> <li>5% Neem Seed Oil</li> <li>Tea Tree Leaf Oil</li> <li>Seboregulating Complex</li> </ul>	



Clarifying Mask	60ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Absorbs surface sebum and impurities although hydrating</li> <li>Anti-bacterial</li> <li>(transitional period)</li> </ul>		<ul style="list-style-type: none"> <li>Tea Tree Oil</li> <li>Vitamin A Ester</li> </ul>	10min  1-2x per week



Glyco Mask	10ml	Main Ingredients	pH 3.5
<ul style="list-style-type: none"> <li>Exfoliating</li> <li>Tightening</li> <li>Reduces fine lines and wrinkles</li> </ul>		<ul style="list-style-type: none"> <li>Amphoteric Glycolic Acid</li> <li>Salicylic Acid</li> </ul>	10min only  1x per week



Pre & Post Serum	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Reduces effects of dry and dehydrated skin</li> <li>Rapid skin barrier repair with regulated transepidermal water loss</li> </ul>		<ul style="list-style-type: none"> <li>Isostearyl Isostearate</li> <li>Scientifically Balanced Moisturisation Complex (SBMC)</li> <li>Mirabilis Jalapa Extract</li> </ul>	

# Problematic Products



Nimue-TDS™ Problematic Skin	30ml	Main Ingredients	pH 5.0
<ul style="list-style-type: none"> <li>Controls the development of acne</li> <li>Reduces inflammation and redness</li> <li>Inhibits the growth of micro-organisms on the skin</li> </ul>		<ul style="list-style-type: none"> <li>Phyto-sphingosine</li> <li>Isostearyl Isostearate</li> </ul>	



Pro Age Foundation	30ml	Main Ingredients	
<ul style="list-style-type: none"> <li>Provides a smooth finish, softens and disguises lines and imperfections</li> <li>Lifting and tightening effect, long-lasting anti-ageing benefits</li> <li>Skin barrier and UVB protection</li> </ul>		<ul style="list-style-type: none"> <li>Ceramide 2</li> <li>Palmitoyl Hexapeptide-12</li> <li>Lifting Complex</li> </ul>	



Facial Wash	200ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Reduces infection</li> <li>Soap-free, gel-like cleanser</li> </ul>		<ul style="list-style-type: none"> <li>1.4% Triple AHA Complex</li> </ul>	



Facial Balance	60ml	Main Ingredients	pH 4.0
<ul style="list-style-type: none"> <li>Hydrating</li> <li>Protects against environmental damage</li> </ul>		<ul style="list-style-type: none"> <li>Pentavitin Plant Extract</li> <li>Co-Enzyme Q10 Complex-Ubiquinone</li> </ul>	



Facial Care	60ml	Main Ingredients	pH 4.5
<ul style="list-style-type: none"> <li>Light, non-greasy</li> <li>Exfoliating, regulates sebum production</li> </ul>		<ul style="list-style-type: none"> <li>5% Triple AHA Complex</li> <li>Tea Tree Oil</li> <li>Lacto Complex</li> </ul>	



Active Blemish Control	15ml	Main Ingredients	pH 3.5
<ul style="list-style-type: none"> <li>Antiseptic</li> <li>Decongests oil glands</li> <li>Controls sebum production</li> </ul>		<ul style="list-style-type: none"> <li>6% Triple AHA Complex</li> <li>Salicylic Acid</li> </ul>	



<b>Purifying Mask</b>	<b>60ml</b>	<b>Main Ingredients</b>	<b>pH 3.5</b>
<ul style="list-style-type: none"> <li>Antiseptic, soothing, healing</li> </ul>		<ul style="list-style-type: none"> <li>Tea Tree Oil</li> <li>Kaolin</li> </ul>	10min  1-2x per week



<b>SPF 40</b>	<b>60ml</b>	<b>Main Ingredients</b>	<b>pH 6.5</b>
<ul style="list-style-type: none"> <li>Lightweight, non-oily and non-whitening emulsion</li> <li>Protection against UVA/UVB</li> <li>Anti-ageing benefits</li> </ul>		<ul style="list-style-type: none"> <li>Inorganic Physical Sunscreen</li> <li>Organic Chemical Sunscreen</li> </ul>	



<b>Environmental Shield SPF 50</b>	<b>20ml/50ml</b>	<b>Main Ingredients</b>	<b>pH 7.5</b>
<ul style="list-style-type: none"> <li>Protection against UV (SPF 50), IR and HEV</li> <li>Stops ROS formation</li> <li>Protection against pollution</li> </ul>		<ul style="list-style-type: none"> <li>Fused Ring Cyanoacrylate</li> <li>Environmental Shield Polymer</li> <li>65% Zinc Oxide Dispersion</li> </ul>	



i n d e x

section **5**

**Delivery Systems for Nimue-SRC™**

Part **1**

Delivery System for Nimue-SRC™  
Environmentally Damaged

Part **2**

Delivery System for Nimue-SRC™  
Hyperpigmented and Problematic



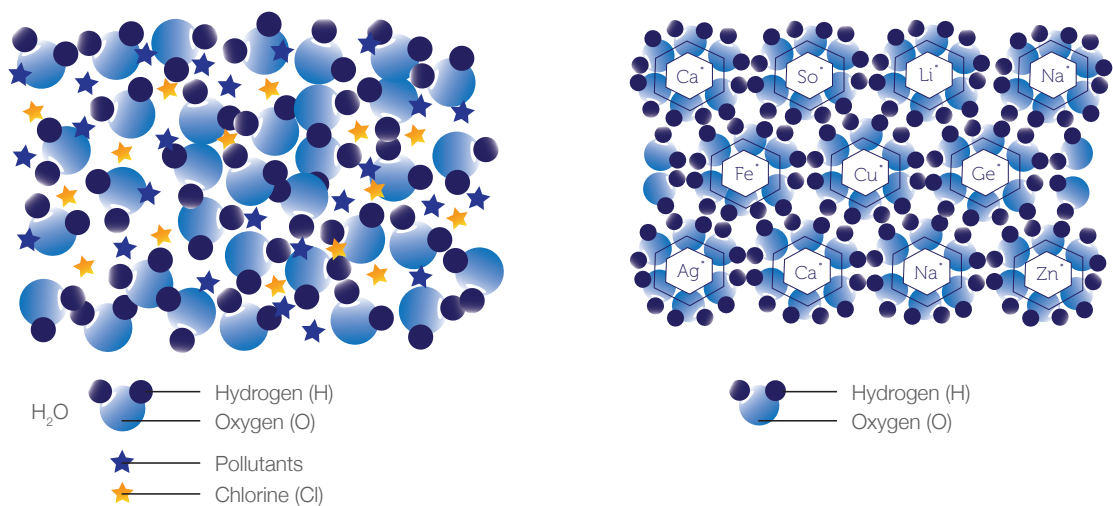
# Delivery System for Nimue-SRC™ Environmentally Damaged

## Polarised Water Delivery System

With the introduction of the Nimue-SRC™ Environmentally Damaged, our cosmetic scientists were able to incorporate the latest scientific delivery system that is proven to be safe and effective to deliver ingredients with minimal or no irritation, in addition to delivering excellent results. Nimue introduced a new polarised water delivery system for safe and effective resurfacing of the skin.

The skin possess 50% of water that flows freely through the skin a remaining 20% are water reservoirs within the cells. Water is an essential element of the skin. When cells lose their water reservoirs, all their metabolic processes are then affected.

Water molecules attract each other due to the H-H bonds effect and the reason why they are organised in clusters. Polarised water allows clusters to be smaller so that water absorption through cell walls are improved.



## The Benefits of Polarised Water

- Higher levels of water in the skin = healthier skin barrier
- Reduces time after the peel with faster skin repair
- Allows for a more even distribution of the acids in the peel = more even penetration and result
- Target cells selected in precision
- Active ingredients released into the cell's core
- Clear step further in the evolution of delivery systems

# Delivery System for Nimue-SRC™ Hyperpigmented and Problematic

## Polymeric Delivery System

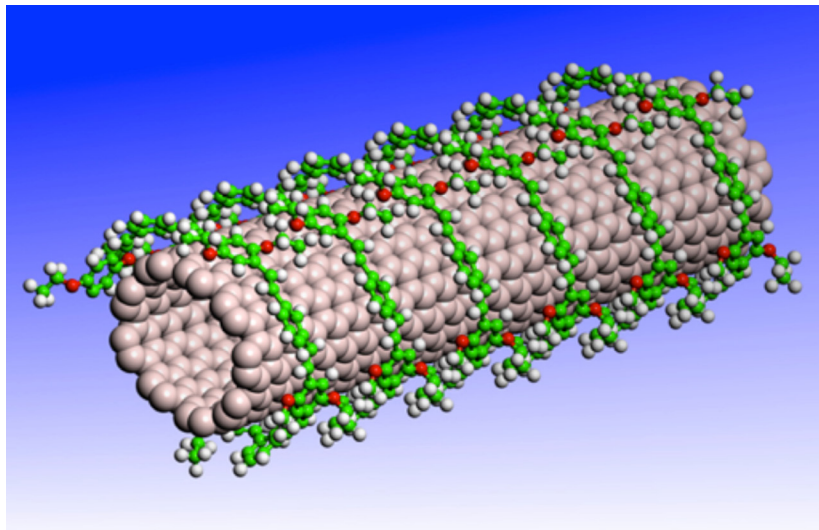
### Polymer

poly - many  
meros - parts

With the Nimue-SRC™ Hyperpigmented and Problematic, a delivery system has been incorporated that is proven to be safe and effective in delivering ingredients with minimal or no irritation, in addition to delivering excellent results.

A polymeric delivery system has been introduced with these two resurfacing treatment complexes.

A polymeric system is a water based delivery system, with a chain of repetitive molecules that makes a strong backbone. Normally, it consists of 5 or more sugar chains, bonded together, into which active ingredients are suspended. These sugar chains are suspended in a carbohydrate gel structure called the cellulosic material. As the skin is made up of sugars, the skin recognizes the polymeric system and as a result, the sugars and the ingredients trapped in the structures are better able to be accepted into the skin. The polymer creates multi-cavities, which are used to entrap the actives which can then be released slowly during the product application on the skin.

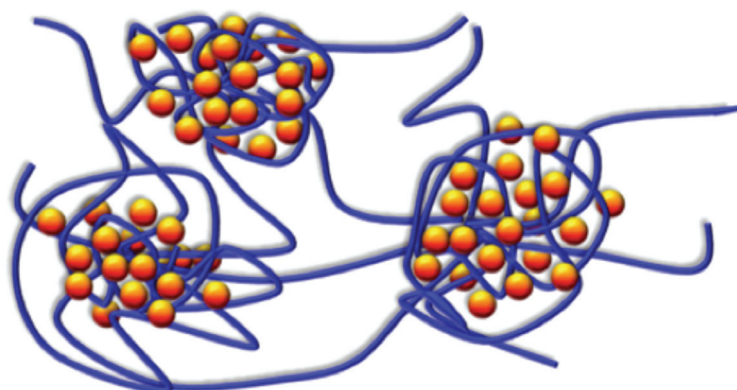


# Delivery System for Nimue-SRC™ Hyperpigmented and Problematic

## Polymeric Delivery System

A polymeric system functions in the following way:

- The gel forms a network through which active ingredients can diffuse into the skin
- The gel network has weak bonds, which break up when applied to the skin, releasing active ingredients directly onto the skin
- The ingredients released are therefore delivered directly onto the skin without losing activity
- Less irritation is caused
- The ingredients are released as needed - not all at once.
- The loosely bonded sugar chains works through the cavities



## The Benefits of a Polymeric System in Peels:

- The benefits of a polymeric system in peels polymeric systems release ingredients into the superficial layers of the skin making it safe and effective
- Because ingredients are not penetrating too deeply - milder peels can be done with no downtime
- Works immediately
- Allows for even peeling
- Prevents risk of post inflammatory hyperpigmentation (PIH)
- Will ensure a mild peel but with good results



i n d e x

section **6**

**Professional Exfoliators and  
Nimue-SRC™ Treatments**



# Professional Exfoliators and Nimue-SRC™ Treatments

## Ingredients in Nimue Professional Exfoliators and Nimue-SRC™

### Tetra Enzymatic Exfoliator

- Polymeric Complex
- Stabilised Papain
- Bromelain
- Botanical Hyaluronic Acid
- Sodium Lactate
- Bisabolol
- Allantoin
- Lipase Enzyme
- Protease Enzyme
- Ascorbic Acid
- Kaolin

### Nimue-SRC™ Environmentally Damaged

- Glycolic Acid
- Lactic Acid
- Pyruvic Acid
- Mandelic Acid
- Citric Acid

### Nimue-SRC™ Hyperpigmented

- Glycolic and Amphoteric Glycolic Acid
- Lactic Acid
- Citric Acid
- Pyruvic Acid
- Mandelic Acid
- Phytic Acid
- Tetrasodium Glutamate Diacetate

# Professional Exfoliators and Nimue-SRC™ Treatments

## Ingredients in Nimue Professional Exfoliators and Nimue-SRC™

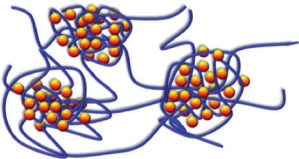

### **Nimue-SRC™ Problematic**

- Glycolic and Amphoteric Glycolic Acid
- Lactic Acid
- Salicylic Acid
- Azelaic Acid
- Willow Bark Extract
- Pyruvic Acid
- Marigold Extract





# Professional Exfoliators and Nimue-SRC™ Treatments

## Ingredients in Nimue Professional Exfoliators and Nimue-SRC™


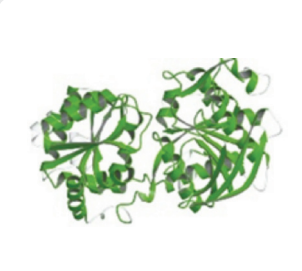
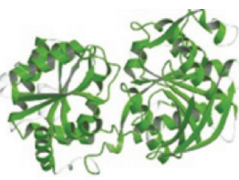

### Tetra Enzymatic Exfoliator

Active ingredient	Key Function	Benefits
<p><b>Polymeric Complex</b></p> 	<ul style="list-style-type: none"> <li>■ Prevents dehydration of skin</li> <li>■ Stimulates ATP production in skin cells</li> <li>■ Promotes collagen production</li> <li>■ Enhances structural integrity and elasticity of the skin</li> </ul>	<ul style="list-style-type: none"> <li>■ This complex consists of a 3D structured gel. The betaine molecules balance the amount of water in the cell and the extracellular fluid.</li> <li>■ Moisturisation is achieved via a dual mechanism action. The polymer creates multi-cavities which are used to entrap hydrated glycerin and is slowly released upon application to the skin, resulting in a feeling of instant relief on contact with the skin.</li> <li>■ The natural salt content from the skin gradually detaches the betaine molecules from the polymer backbone. These molecules then migrate to the skin offering long lasting moisturisation. This polymeric complex provides consistent and effective delivery of moisturisers immediately on skin contact and prolonged moisture delivery after application.</li> </ul>
<p><b>Stabilised Papain</b></p> 	<ul style="list-style-type: none"> <li>■ Brightens skin - radiant and glowing appearance</li> <li>■ Smoothes skin texture</li> </ul>	<ul style="list-style-type: none"> <li>■ Different to regular papain due to the crosslinking to a carbomer resulting in a stable polymeric enzyme.</li> <li>■ The enzyme will not be active until applied to the skin and therefore is able to digest protein bonds more effectively.</li> <li>■ Highly stable, does not lose activity before applied to skin.</li> <li>■ Has a proteolytic action on dead skin cells where it dissolves bonds between dead skin cells.</li> </ul>

# Professional Exfoliators and Nimue-SRC™ Treatments

Active ingredient	Key Function	Benefits
<p><b>Bromelain</b></p> 	<ul style="list-style-type: none"> <li>■ Accelerates natural exfoliation</li> <li>■ Unblocks pores</li> </ul>	<ul style="list-style-type: none"> <li>■ An enzyme derived from pineapple</li> <li>■ A proteolytic enzyme which digests proteins in bonds between corneocytes.</li> <li>■ Pineapple is high in vit C and A, and thus has free radical scavenging and anti-inflammatory properties.</li> </ul>
<p><b>Botanical hyaluronic acid</b></p> 	<ul style="list-style-type: none"> <li>■ Increases skin radiance</li> <li>■ Immediate and long term</li> <li>■ Increase suppleness</li> </ul>	<ul style="list-style-type: none"> <li>■ A plant derivative equivalent to hyaluronic acid.</li> <li>■ Provides skin moisturisation.</li> <li>■ Derived from the plant Cassia Angustifolia .</li> </ul>
<p><b>Sodium Lactate</b></p> 	<ul style="list-style-type: none"> <li>■ Immediate moisturisation for up to 4 hours</li> <li>■ Increases elasticity</li> </ul>	<ul style="list-style-type: none"> <li>■ A main component of the NMF in the skin to maintain water in the skin.</li> <li>■ Comes from Sodium Salt derived by the natural fermentation of a lactic acid.</li> <li>■ Acts as a humectant to prevent the drying out of the skin.</li> </ul>
<p><b>Bisabolol</b></p> 	<ul style="list-style-type: none"> <li>■ Anti-inflammatory</li> </ul>	<ul style="list-style-type: none"> <li>■ A purified molecule from camomile.</li> <li>■ Soothing properties to the skin.</li> </ul>

# Professional Exfoliators and Nimue-SRC™ Treatments

Active ingredient	Key Function	Benefits
<p><b>Allantoin</b></p> 	<ul style="list-style-type: none"> <li>■ Increases moisture retention</li> <li>■ Promotes healing</li> <li>■ Enhances skin rejuvenation</li> <li>■ Soothes</li> <li>■ Anti-irritation</li> </ul>	<ul style="list-style-type: none"> <li>■ By increasing capacity of corneocytes to bind water, allantoin reinforces the skin's natural protective barrier and improves moisture retention providing a smoothing effect on the skin.</li> <li>■ Allantoin exfoliates dry and damaged cells and boosts the radiant appearance of the skin.</li> </ul>
<p><b>Lipase Enzymes</b></p> 	<ul style="list-style-type: none"> <li>■ Reduces sebum on the skin</li> <li>■ Prevents clogging of pores</li> </ul>	<ul style="list-style-type: none"> <li>■ A lipolytic enzyme in a maltodextrin polymer system promoting the enzymatic degradation of sebum, breaking down excess sebum on the skin.</li> </ul>
<p><b>Protease Enzyme</b></p> 	<ul style="list-style-type: none"> <li>■ Keratin degradation</li> </ul>	<ul style="list-style-type: none"> <li>■ A keratolytic enzyme in a maltodextrin polymer system that accelerates the natural shedding process of the stratum corneum by breaking up the peptidic bonds</li> </ul>
<p><b>Ascorbic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Anti-oxidation</li> <li>■ Promotes skin brightening</li> <li>■ Stimulates collagen synthesis</li> </ul>	<ul style="list-style-type: none"> <li>■ Vitamin C in its purest form</li> </ul>

# Professional Exfoliators and Nimue-SRC™ Treatments

Ingredients in Nimue Professional Exfoliators and Nimue-SRC™

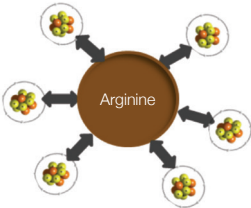


## Nimue Tetra Enzymatic Exfoliation System Guidelines

Skin	Total treatment time of exfoliation	Steam/steam & massage
Combination skin	10 min	steam: 4 min steam & massage: 6 min
Oily and/or acne skin	10 min	steam: 8 min steam & massage: 2 min
Dry skin	10 min	steam: 2 min steam & massage: 8 min
Excessive dry skin	6 min	steam: 2 min steam & massage: 4 min




# Professional Exfoliators and Nimue-SRC™ Treatments

## Ingredients in Nimue Professional Exfoliators and Nimue-SRC™




### Nimue-SRC™ Environmentally Damaged, Hyperpigmented and Problematic

Active ingredient	Key Function	Benefits
<p><b>Glycolic and Amphoteric Glycolic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Promotes exfoliation</li> <li>■ Increases moisturisation</li> <li>■ Increases cell turnover</li> <li>■ Promotes collagen synthesis</li> <li>■ Promotes skin brightening</li> </ul>	<ul style="list-style-type: none"> <li>■ Lower molecular weight AHA capable of increased penetration to effectively and rapidly exfoliate the skin</li> <li>■ A “time release mechanism” leads to a lower peak concentration of AHA’s thus preventing irritation</li> </ul>
<p><b>Lactic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Promotes hydration</li> <li>■ Skin brightening</li> </ul>	<ul style="list-style-type: none"> <li>■ An effective exfoliating agent that has skin lightening properties.</li> </ul>
<p><b>Pyruvic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Derived from fermented fruit, grapes and honey</li> <li>■ Prevents thickening of horny layer by breaking down the cohesion between epidermal corneocytes.</li> </ul>	<ul style="list-style-type: none"> <li>■ Reduces oiliness</li> <li>■ Prevents superficial acne scarring</li> </ul>



# Professional Exfoliators and Nimue-SRC™ Treatments

Active ingredient	Key Function	Benefits
<p><b>Mandelic</b></p> 	<ul style="list-style-type: none"> <li>■ Mandelic acid is an extract of bitter almonds.</li> <li>■ The molecular weight is higher than the molecular weight of glycolic acid therefore it has less of an exfoliating capacity.</li> <li>■ It suppresses pigmentation including PIH and melasma and rejuvenates photoaged skin.</li> <li>■ It slowly absorbs for an even penetration and less irritation therefore excellent for skin that is more sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>■ Stimulates cell turnover</li> <li>■ Inhibits the pigmentation process</li> <li>■ Keratolytic</li> <li>■ Anti-bacterial</li> </ul>
<p><b>Citric</b></p> 	<ul style="list-style-type: none"> <li>■ Included for optimum efficacy of Nimue triple-AHA complex concept.</li> </ul>	<ul style="list-style-type: none"> <li>■ Anti-oxidant</li> </ul>
<p><b>Phytic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Due to the small molecular size, it has deep penetration potential therefore is excellent for treating epidermal melasma.</li> <li>■ Has minimal irritation potential.</li> <li>■ Slows down oxidation due to being a chelating agent. It blocks the entrance of iron and copper in the formation of melanin.</li> </ul>	<ul style="list-style-type: none"> <li>■ Chelating agent</li> <li>■ Assists in treating epidermal melasma</li> </ul>

# Professional Exfoliators and Nimue-SRC™ Treatments

Active ingredient	Key Function	Benefits
<p><b>TGD (Tetrasodium Glutamate Diacetate)</b></p> 	<ul style="list-style-type: none"> <li>■ Removes free metal ions to reduce the entrance of copper into tyrosinase enzyme</li> </ul>	<ul style="list-style-type: none"> <li>■ Chelating</li> <li>■ Anti-oxidant</li> <li>■ Skin lightening</li> </ul>
<p><b>Salicylic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Removes oil and debris attached to skin surface</li> <li>■ Loosens and removes ageing cells from surface</li> <li>■ Anti-inflammatory</li> </ul>	<ul style="list-style-type: none"> <li>■ An oil-soluble beta-hydroxy acid to clear pores and also effectively act as a superficial peeling agent.</li> </ul>
<p><b>Azelaic Acid</b></p> 	<ul style="list-style-type: none"> <li>■ Anti-bacterial</li> <li>■ Anti-oxidation</li> <li>■ Reduces inflammation</li> <li>■ Reduces sebum production</li> <li>■ Decreases number of active sebaceous glands</li> <li>■ Anti-lipase activity</li> <li>■ Promotes a clearer, less oily skin</li> </ul>	<ul style="list-style-type: none"> <li>■ In a cyclodextrin system for slow release of the active.</li> <li>■ Azelaic is naturally found in wheat, rye and barley.</li> <li>■ It is efficient against bacteria in the follicles.</li> <li>■ Has a keratolytic and comedolytic effect.</li> <li>■ It is an effective free radical scavenger.</li> <li>■ A strong 5-alpha reductase inhibitor.</li> </ul>

# Professional Exfoliators and Nimue-SRC™ Treatments

Active ingredient	Key Function	Benefits
<p><b>Willow Bark Extract</b></p> 	<ul style="list-style-type: none"> <li>■ Increases cell renewal</li> <li>■ Anti-microbial</li> <li>■ Exfoliation</li> <li>■ Anti-inflammatory</li> <li>■ Increases cell renewal</li> </ul>	<ul style="list-style-type: none"> <li>■ An extract from the black willow tree rich in tannins and salicylic –like materials.</li> <li>■ More effective in exfoliation and increasing stratum corneum turnover than salicylic acid.</li> <li>■ Effective against bacteria in the follicles.</li> </ul>
<p><b>Marigold Extract</b></p> 	<ul style="list-style-type: none"> <li>■ An extract from the calendula flower used for sensitive, irritated skin due to the presence of saponins and polyphenolic derivatives. It also has exfoliating properties.</li> </ul>	<ul style="list-style-type: none"> <li>■ Anti-inflammatory</li> <li>■ Anti-oxidation</li> </ul>

## Professional products

Phase 3 treatments | Nimue-SRC™

### Preparation

- Gauze Swabs
- Disposable Compress
- Eye Make Up Remover
- Cleansing Gel
- Conditioner
- Hydro Lip Protection
- Tetra Enzymatic Exfoliating System
- Alcohol Pad

### Active Treatment

- Nimue-SRC™ Environmentally Damaged
- Nimue-SRC™ Hyperpigmented
- Nimue-SRC™ Problematic
- Neutraliser Plus

### Nimue-TDS™ Professional Solutions

- Nimue-TDS™ Environmentally Damaged Skin
- Nimue-TDS™ Hyperpigmented Skin
- Nimue-TDS™ Problematic Skin
- Nimue-TDS™ Interactive Skin

### Masks

- Alginate Mask

### Eye care

- Collagen Eye Film (Optional)

### After care

- After Care Hydrator
- Hyaluronic Acid Gel
- SPF 40



# Phase 3 of the Nimue skin health programme

Phase 3 of the Nimue Skin Health Programme consists of numerous professional treatments. It enhances the results of the Nimue homecare products and in turn, it prepares the skin for better penetration of active ingredients. The professional treatments accelerate the skin rejuvenation process and improve skin health more rapidly.



**+50%**  
professional  
3pH

**PHASE 3:TREATMENTS**



# Preparation

## Phase 3 treatments | Nimue-SRC™



## Gauze Swabs

100 pieces



Forms an important part of the Nimue Professional Range.

### Gauze swab application

- Use in every treatment for additional exfoliation benefits
- Ideal to remove Nimue Cleansing Gel or Exfoliating Enzyme
- Ideal to apply Nimue Conditioner
- Use with care when treating sensitive skin



## Disposable Compress

100 pieces  
and refill



Forms an important part of the Nimue Professional Range.

### Disposable compress application

- May be used in every treatment
- Can be used to remove Nimue Exfoliating Enzymes and Masks if skin is sensitive
- Can be used to remove Bio-Active Complex, 35% Glycolic and Nimue-SRC™ Treatments

# Preparation

Phase 3 treatments | Nimue-SRC™



## Eye Make Up Remover

500ml



pH 5.5

Gentle and mild soap-free lotion that effectively removes eye and lip make up while offering anti-ageing benefits.

### Active ingredients

- GGP
- Shea Butter

### Product benefits

- Gentle and effective removal of eye and lip make up
- Increased moisturisation



## Cleansing Gel

500ml



pH 4.5

The first step in the treatment of skin health. Formulated as a soap-free 2-in-1 creamy gel.

### Active ingredients

- 1.4% Triple AHA Complex
- Vitamin A & E Ester

### Product benefits

- Light exfoliation properties
- Gentle and effective removal of make up and debris

# Preparation

Phase 3 treatments | Nimue-SRC™



## Conditioner

500ml



pH 4.5

A conditioning skin treatment to promote skin health.

### Active ingredients

- 7% Triple AHA Complex
- Petitgrain Oil

### Product benefits

- Degreasing properties
- Accelerated skin rejuvenation



## Hydro Lip Protection

5g



pH 4.5

This lightly textured Hydro Lip Protection is formulated to protect, condition and nourish.

### Active ingredients

- Vitamin E Ester
- Allantoin

### Product benefits

- Leaves a protective and soothing film on the skin

### Application technique

- For use on corners of eyes, nose and mouth to protect mucous membranes during all professional treatments. Scrape a small amount of Hydro Lip Protection onto a small Nimue spatula. Using a cottonbud, apply Hydro Lip Protection to above mentioned areas.

# Preparation

## Phase 3 treatments | Nimue-SRC™



### Tetra Enzymatic Exfoliating System

enzyme powder  
250ml & liquid  
activator 200ml



The enzymatic exfoliating system is a 2 phase professional system designed for an intense exfoliation utilising 4 different enzymes in the system ensuring maximum efficacy and to optimize the results of the active treatment. The enzyme powder and liquid activator are freshly compounded before each application for increased potency of keratolytic and lipolytic enzymes. The biotechnologically derived enzymes are bonded electrostatically to a polymeric system to enhance the stability of the enzymes in addition to them only being activated on mixing.

#### Active ingredients

##### Enzyme Powder Base

- Starch and Kaolin
- Lipase and Protease in Maltodextrins
- Ascorbic Acid

##### Liquid Activator

- Polymeric Complex
- Stabilized Papain
- Bromelain
- Botanical Hyaluronic Acid
- Sodium Lactate
- Bisabolol
- Allantoin

#### Product benefits

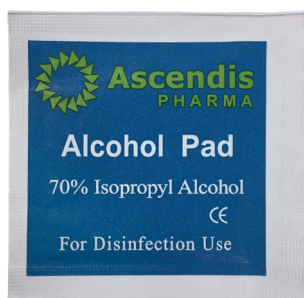
- The protease enzymes break up the peptidic bonds in the cornified layer of the skin. The lipases break down the excess sebum stored, thus preventing breakouts
- Enhanced moisturisation to increase moisture within 5 minutes of applying the product
- Skin exfoliation and renewal resulting in refinement and softening of the skin texture
- More even skin tone and luminous, radiant appearance
- Brightening of the skin

#### Application technique

- The Nimue Enzyme Powder and Liquid Activator must be mixed together just before application to the skin. Do not leave the mixture to stand before use. Shake both containers well before use
- Decant 25 ml of enzyme powder [one scoop] and 15 ml of liquid activator [approximately 10 pumps] into a Nimue rubber mixing bowl. Mix together into a smooth paste. Apply all of the mixture in an even layer to face and neck. Avoid the immediate eye area
- Use steamer on face (do not use ozone setting as this will de-activate the enzymes). Leave for approximately 4 minutes with steam and then massage into the skin with warm water for approximately 4 minutes whilst the steamer is on the face
- NB. This mixture must be kept moist on the skin for the full duration
- A tingling sensation may be experienced
- Remove thoroughly with damp gauze
- Cleanse with Nimue Cleansing Gel to remove any residue if required
- Any remaining mixture cannot be stored or used later and must be discarded
- The powder and activator must be stored in a cool dry place. Avoid direct sunlight

# Preparation

Phase 3 treatments | Nimue-SRC™



## Alcohol Pad



Alcohol Pad is used to degrease the skin and prepare the skin for the active treatment.

### Active ingredients

- Iso-Propanol

### Product benefits

- Effectively removes all traces of oil and prepares the skin for the application of peel treatments and Nimue Microneedling treatment
- Enhances the final result of the treatment

### Application technique

- Remove saturated gauze swabs from sachets
- Wipe area to be treated with gauze, with special attention to oily areas, creases and folds
- Place a fan over clients face during application to disperse pungent smell
- Allow to dry
- Follow with application of active treatment

# Active treatment

Phase 3 treatments | Nimue-SRC™



Nimue-SRC™  
environmentally damaged

4ml



pH 3.0

A fast acting, intense and highly specialised anti-ageing and resurfacing treatment that is active without irritation and side effects

## Active ingredients

### Primary ingredients

- Lactic Acid (exfoliation & brightening)
- Glycolic Acid (standard) (exfoliation)
- Citric Acid (exfoliation)
- Mandelic Acid (exfoliation)
- Pyruvic Acid (exfoliation & rejuvenation)

### Product benefits

- Reduces fine lines and wrinkles
- Smooths skin
- Refines skin texture and reduces the appearance of enlarged pores
- Provides instant radiance
- Assists in improving dark/age spots

### Application technique

- Use Nimue-SRC™ Environmentally Damaged Peel directly from pod or decant into a clean glass bowl
- Apply an even layer of Nimue-SRC™ Environmentally Damaged peel to the face, neck and décolleté with a dry brush. Avoid the upper eyelids, area under the eyes and the corners of eyes, nose and lips
- A fan may be used to minimize the slight tingling sensation, which may vary from person to person
- Leave on the skin for approximately 5 - 10 minutes, depending on severity of condition
- Mild Environmentally Damaged Skin: course of 6 treatments at 3 - 6 weekly intervals
- Severe Environmentally Damaged Skin: course of 8 treatments at 3 - 6 weekly intervals. This is a time dependent peel due to AHA content and must be neutralised thoroughly after the required time with Nimue Neutraliser Plus
- Ensure that the Nimue Client Consultation Form and Client Consent Form is signed
- **Single dose, cannot be stored once opened**

# Professional Products

## Nimue-SRC™ Environmentally Damaged Treatment Guidelines and Frequency

Photo type/age of client	Treatment frequency	Time of application
Photo type IV, V, VI	1 treatment every 4 - 6 weeks	5 min application
Age 20 - 30	1 treatment every 6 weeks	5 min application
Age 30 - 40	1 treatment every 3 weeks	5 - 10 min application
Age 40 upwards*	1 treatment every 3 weeks	5 - 10 min application

\* More mature skin has a slower metabolism and cell turnover cycle. Cells need to mature and if peeling too often, young cells are removed before maturation which upsets cell renewal cycle.

# Active treatment

## Phase 3 treatments | Nimue-SRC™



### Nimue-SRC™

hyperpigmented

4ml



pH 3.0

The Nimue-SRC™ hyperpigmented peel is a concentrated superficial peel with added treatment properties in a light gel base. It is specifically indicated for hyperpigmented and environmentally damaged skin conditions in a cumulative course of treatments. This skin brightening formulation combines 7 compounds unrelated to hydroquinone. A complex of acids based on a high concentration of Lactic acid, in association with lower concentrations of Glycolic, Citric, Mandelic and Pyruvic acids, provide an even penetration and absorption for effective exfoliation without overstimulating hyperpigmented skin. A broad spectrum Anti-oxidant complex consisting of Phytic acid and Tetrasodium Glutamate Diacetate work in synergy as a powerful broad spectrum Anti-oxidant to chelate the copper ions out of the tyrosinase enzyme thus preventing the oxidation process in which melanin forms. A unique polymeric gel based delivery system reduces stinging and discomfort.

#### Active ingredients

##### Primary ingredients

- Lactic Acid (exfoliation & brightening)
- Glycolic Acid (standard & amphoteric) (exfoliation)
- Citric Acid (exfoliation)
- Mandelic Acid (exfoliation)
- Tetrasodium Glutamate Diacetate (anti-oxidant & skin lightening agent)
- Pyruvic Acid (exfoliation & rejuvenation)
- Phytic Acid (anti-oxidant)

#### Product benefits

- Anti-oxidant action reduces inflammatory process to prevent PIH
- The acids enhance the penetration of skin brightening agents in the Nimue fading system
- Contains skin brightening properties of their own via suppression of tyrosinase formation and accelerate the exfoliation of hyperpigmented cells
- Skin exfoliation and renewal resulting in refinement and softening of the skin
- Brightening of the skin

#### Application technique

- Use Nimue-SRC™ Hyperpigmented Peel directly from pod or decant into a clean glass bowl
- Apply an even application of Nimue-SRC™ hyperpigmented peel to the skin with the sponge applicator. Avoid the upper eyelids, area under the eyes (applying only up to the eye socket line), corners of the eyes and lips. May be used on the neck if required
- A fan may be used to minimize the slight tingling sensation, which may vary from person to person. Leave on the skin for approximately 5 - 10 minutes, depending on severity of condition
- Mild pigmentation: treat at 2 - 3 weekly intervals  
Severe pigmentation: treat at 3 - 4 weekly intervals  
This is a time dependent peel due to the AHA content and must be neutralized thoroughly with Neutraliser Plus after the required time
- Ensure that Nimue client consultation card and client consent form is signed
- **Single dose, cannot be stored once opened**

# Professional Products

## Nimue-SRC™ Hyperpigmented Treatment Guidelines and Frequency

Type of hyperpigmentation	Treatment frequency	Time of application
Mild HP	1 treatment every 2 - 3 weeks	10 min application
Severe HP	1 treatment every 4 - 6 weeks	5 min application

\* A course of 6-12 treatments is recommended

# Active treatment

## Phase 3 treatments | Nimue-SRC™



### Nimue-SRC™ problematic

4ml



pH 3.0

The Nimue-SRC™ problematic peel is a concentrated superficial keratolytic peel (based on 5 exfoliation agents) with added treatment properties in a light emulsion base. The advanced cumulative treatment peeling system is indicated for the problematic [acne and acne prone conditions] skin classification. The selection of active ingredients in a polymeric delivery system facilitate superficial peeling and assists in the treatment of problematic skin.

#### Active ingredients

##### Primary ingredients

- Glycolic Acid (standard and amphoteric) (exfoliation)
- Lactic Acid (exfoliation)
- Salicylic Acid (exfoliation)
- Azelaic Acid in Cyclodextrin System (antibacterial)
- Willow Bark Extract (exfoliation)
- Pyruvic Acid (exfoliation & rejuvenation)
- Marigold Extract (anti-oxidant)

##### Product benefits

- Skin exfoliation and decongestion
- Antibacterial properties
- Refinement and softening of the skin
- Improvement in skin texture and pore size
- Brightening of the skin
- The acids enhance the penetration of actives in the corrective homecare system to enhance results

##### Application technique

- Use Nimue-SRC™ Problematic Peel directly from pod or decant into a clean glass bowl
- Apply an even application of Nimue-SRC™ problematic peel to the skin with the applicator. Avoid the upper eyelids, area under the eyes (applying only up to the eye socket line), corners of the eyes and lips. May be used on the neck if required
- A fan may be used to minimize the slight tingling sensation which may vary from person to person
- Leave on the skin for approximately 5 - 7 minutes, depending on severity of condition
- This is a time dependent peel due to the AHA content and must be neutralized thoroughly after the required time
- Ensure that Nimue Client Consultation Form and Client Consent Form is signed
- **Single dose, cannot be stored once opened**

# Professional Products

## Nimue-SRC™ Problematic Treatment Guidelines and Frequency

Type of hyperpigmentation	Treatment frequency	Time of application
Acne prone	1 treatment every 4 weeks	5 min application
Active prone	1 treatment every 2 weeks	5 - 7 min application

\* A course of 6 - 12 treatments is recommended

### Caution

- It is still a time dependent peel. Discretion must be used depending on the skin condition
- As a guideline, standard time 5 minutes for first treatment
- Depending on outcome [not too inflamed], can do maximum of 7 minutes in subsequent treatments
- Base each treatment on previous response for each client
- You can expect frosting on open areas. Should there be more general frosting or a bigger patch, neutralise as soon as frosting is visible.
- The Neutraliser Plus will also help with the barrier repair and anti-inflammatory response

# Active treatment

Phase 3 treatments | Nimue-SRC™



## Neutraliser Plus

200ml



pH 7.5

A fusion of treatment and neutralisation in one product for active skin resurfacing without the side effects and discomfort

### Active ingredients

- Ferulic acid (soothing and anti-inflammatory)
- Isostearyl Isostearate (barrier repair)

### Product benefits

- Dual action neutralising and treatment
- Reduces redness, inflammation and post peel discomfort
- Replaces biolipids to improve skin barrier function
- Regulates water content in skin, reducing TEWL
- Anti-oxidant protection against free radicals reducing risk of post inflammatory hyperpigmentation
- Leaves the skin feeling smooth and soft

### Application technique

- Fold 4 pieces of water saturated gauze and place into a small Nimue rubber bowl
- Place 1 disposable compress into second small Nimue rubber bowl and saturate with water
- Decant 2 pumps of Neutraliser Plus per gauze and press 2 pieces of gauze together to spread Neutraliser Plus evenly onto both pieces
- Warn client that the Neutraliser Plus might tingle due to neutralisation process
- Use 2 pieces of gauze at a time
  - Stipple starting at most sensitive or red area. If no redness or sensitivity, start on the forehead down to the neck
  - Wipe thoroughly over facial area to start removing the peel
  - Use next two pieces of gauze with an additional 2 pumps of Neutraliser Plus to make sure the peel has been thoroughly removed
- Apply compress over the face and press gently
- Wipe over face, neck and decollete with compress to thoroughly remove excess peel
- Use in the following treatments to neutralise:
  - Compulsory
    - Nimue-SRC™ Environmentally Damaged
    - Nimue-SRC™ Hyperpigmented
    - Nimue-SRC™ Problematic
  - Optional
    - Nimue Active Rejuvenation Treatment
    - Nimue 35% Glycolic Treatment

# Nimue-TDS™ professional solutions

Phase 3 treatments | Nimue-SRC™



## Nimue-TDS™ environmentally damaged skin

30ml



pH 5.5

The Nimue Environmentally Damaged Skin Transdermal Solution is effective in barrier repair, delivering anti-glycation benefits to improve the visible signs of skin fatigue and premature ageing. Skin is left feeling and looking refreshed.

### Active ingredients

- Extract of Albizia Julibrissan (reduces the visible signs of fatigue and visible ageing)
- Mirabilis Jalapa Extract (strengthens and hydrates the epidermis)
- Isostearyl Isostearate (ISIS) (reinforces the natural skin barrier)

### Product benefits

- Optimum transdermal delivery
- Skin barrier repair
- Anti-glycation effects
- Reduction in the cause and visible signs of fatigued skin
- Reduced skin slackening
- Improvement in skin complexion
- Detoxification
- Improved skin health

### Application technique

- Use 2-3ml and apply to the face, neck and décolleté
- Massage into the skin and allow to dry
- Use under Nimue Professional Masks or during Nimue Microneedling treatments
- It is important to use the Nimue Pre & Post Serum 1-2 weeks before commencing with a Nimue Professional Treatment
- It should also be used during a course of Nimue Professional treatments and for a minimum of 1-2 weeks after completing the treatment course

# Nimue-TDS™ professional solutions

## Phase 3 treatments | Nimue-SRC™



## Nimue-TDS™ hyperpigmented skin

30ml

pH 5.5

The Nimue Hyperpigmented Skin Transdermal Solution evens out the skin tone by reducing the appearance of hyperpigmentation. It provides protection against the damaging effects of free radicals. The skin is left with a brighter complexion with reduced wrinkles and expression lines.

### Active ingredients

- Octadecenedioic Acid (inhibits the melanogenesis process)
- Microencapsulated Vitamin C (brightens the skin)
- Mirabilis Jalapa Extract (strengthens and hydrates the epidermis)
- Isostearyl Isostearate (ISIS) (reinforces the natural skin barrier)

### Product benefits

- Optimum transdermal delivery
- Skin barrier repair
- Reduction in pigmentation
- Brightening of the skin
- Improvement in skin tone
- Improved skin health

### Application technique

- Use 2-3ml and apply to the face, neck and décolleté
- Massage into the skin and allow to dry
- Use under Nimue Professional Masks or during Nimue Microneedling treatments
- It is important to use the Nimue Pre & Post Serum 1-2 weeks before commencing with a Nimue Professional Treatment
- It should also be used during a course of Nimue Professional treatments and for a minimum of 1-2 weeks after completing the treatment course

# Nimue-TDS™ professional solutions

Phase 3 treatments | Nimue-SRC™



## Nimue-TDS™

problematic skin

30ml



pH 5.5

The Nimue Problematic Skin Transdermal Solution controls the development of acne, reducing inflammation and redness. It boosts the skin's natural defence properties, offering anti-microbial and anti-inflammatory properties.

### Active ingredients

- Phytosphingosine (anti-microbial and anti-inflammatory)
- Mirabilis Jalapa Extract (strengthens and hydrates the epidermis, offering comfort and relief)
- Isostearyl Isostearate (ISIS) (reinforces the natural skin barrier)

### Product benefits

- Optimum transdermal delivery
- Skin barrier repair
- Reduction in the signs of acne
- Reduction in redness and inflammation
- Inhibits the growth of micro-organisms on the skin
- Improved skin health

### Application technique

- Use 2-3ml and apply to the face, neck and décolleté
- Massage into skin and allow to dry
- Use under Nimue Professional Masks or during Nimue Microneedling treatments
- It is important to use the Nimue Pre & Post Serum 1-2 weeks before commencing with a Nimue Professional Treatment
- It should also be used during a course of Nimue Professional treatments and for a minimum of 1-2 weeks after completing the treatment course

# Nimue-TDS™ professional solutions

Phase 3 treatments | Nimue-SRC™



## Nimue-TDS™

interactive skin

30ml



pH 5.5

The Nimue Interactive Skin Transdermal Solution boosts the production of six skin synthesis rebuilding essentials improving skin health and appearance. Comforts the skin and reduces redness and skin sensitisation.

### Active ingredients

- Lipopeptide (dioxxygenated natural peptide) (stimulates 6 skin building essentials of the skin matrix and dermal-epidermal junction)
- Mirabilis Jalapa Extract (strengthens and hydrates the epidermis, offering comfort and relief)
- Isostearyl Isostearate (ISIS) (reinforces the natural skin barrier)

### Product benefits

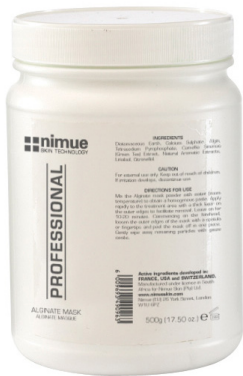
- Optimum transdermal delivery
- Skin barrier repair
- Desensitises the skin
- Offers comfort to sensitive skin
- Reduction in fine lines and wrinkles
- Improved skin health

### Application technique

- Use 2-3ml and apply to the face, neck and décolleté
- Massage into skin and allow to dry
- Use under Nimue Professional Masks or during Nimue Microneedling treatments
- It is important to use the Nimue Pre & Post Serum 1-2 weeks before commencing with a Nimue Professional Treatment
- It should also be used during a course of Nimue Professional treatments and for a minimum of 1-2 weeks after completing the treatment course

# Masks

Phase 3 treatments | Nimue-SRC™



## Alginate Mask



A setting mask that hydrates, soothes and calms the skin whilst creating a smooth texture.

### Active ingredients

- Diatomaceous Earth
- Alginate

### Product benefits

- Provides a cooling soothing effect on the skin
- Humectant to improve hydration

# Eye care

Phase 3 treatments | Nimue-SRC™



## Collagen Eye Film



A soluble hydrogel collagen enriched eye mask film for the intensive treatment of the under eye area.

### Active ingredients

- Hydrolyzed Marine Collagen
- Marine Algae Extract
- Aloe Leaf Extract

### Product benefits

- Hydrates the skin resulting in softening of lines and wrinkles
- Reduces puffiness and bags under the eyes
- Revitalises and refreshes the skin around the eyes

# After care

Phase 3 treatments | Nimue-SRC™



## After Care Hydrator

100ml  pH 6.0

Promotes skin moisturisation, skin barrier protection and provides a cooling and soothing effect.

### Active ingredients

- Allantoin
- Shea Butter

### Product benefits

- Softens, soothes and cools the skin
- Hydrates and increases moisture retention



## Hyaluronic Acid Gel

30ml  pH 6.0

A lightweight gel providing a moisturising, repairing and plumping effect on the skin (not to be used in the Nimue 7.5% TCA Treatment).

### Active ingredients

- Sodium Hyaluronate Cross Polymer
- LMW Hyaluronic Acid
- HMW Hyaluronic Acid

### Product benefits

- Moisturises and repairs the skin after active skin peeling treatments
- Penetrates the stratum corneum and attracts water into these cells

# After care

Phase 3 treatments | Nimue-SRC™



## SPF 40

100ml



pH 6.5

Lightweight, non-oily cream that offers a dual focus in providing a certified high broad spectrum UVA/UVB protection and preventing the visible signs of photo ageing.

### Active ingredients

- Inorganic Physical Sunscreen
- Organic Chemical Sunscreen

### Product benefits

- Broad spectrum UVA/UVB protection - factor 40
- Protects against harmful effects of free radicals

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section **8**

**Professional Consultation**

- Client Consultation Form
- Client Consent Form



# Professional Consultation

## Client Consultation Form



### client consultation form

client information (client to complete this section)

Name and Surname:	
Physical/Postal Address:	
Mobile Number:	
Email Address:	
Occupation:	
Date of birth:	Therapist:
Date of Consultation:	

### client history

Current skin care range:

Hormonal imbalance	Yes	No	Smoker	Yes	No	Skin resurfacing/Chemical peels (in the last 2 weeks)	Yes	No
Pregnant	Yes	No	Skin cancer	Yes	No	Botulinum Toxin injections/Fillers (in the last 2 weeks)	Yes	No
Breastfeeding	Yes	No	IPL/Laser (in the last 2 weeks)	Yes	No	Waxing/Electrolysis (in the last 3 days)	Yes	No

Medical Conditions/Surgery in the past year:

Medication (Tretinoin, Accutane, Cortisone, Thyroid Medication, and/or other medication):

Allergies (Aspirin, Latex, AHA in skin care products):

### skin assessment

Choose the skin classification based on the most identified areas of concern. (If any of the interactive choices are marked, the client will start on the interactive range and gradually move to the AHA based products from lowest to highest concentration)

Environmentally Damaged	Hyperpigmented	Problematic	Interactive
Areas with oiliness	Dark pigmented areas	Excessive oil	Rosacea
Areas with dryness	Light pigmented areas	Continuous break-outs	Eczema
Areas of redness	Melasma/Chloasma	Occasional break-outs	Psoriasis
Age spots	Post-inflammatory hyperpigmentation	Inflammation	Dermatitis
Lines/wrinkles	Dehydration	Enlarged pores	Diabetes
Sagging skin		Blackheads	Sensitization/redness
Uneven/rough skin texture		Whiteheads	Thin/fragile skin
Irregular pigmentation		Dehydration	Dehydration
Dehydration			

Client's skin concern:

I hereby confirm that the above information is correct and consent to the recommended treatment plan.

Client signature: \_\_\_\_\_ Therapist signature: \_\_\_\_\_ Date: \_\_\_\_\_

### Nimue treatment plan

Support treatments (phase 1 & non-nimue users)

Introductory/Active Rejuvenation Treatment (skin only)	Therapeutic Treatment	Deep Cleanse Treatment
Date		
Super Fluid/s		
Nimue-TDS™		
Mask		

### Active treatments (phase 1 & phase 2 nimue users)

Active Rejuvenation Treatment	5% Glycolic Treatment	7.5% TCA Treatment (non EU countries)	Thermal Diox Peel	Nimue-SPC™ ED Treatment	Nimue-SPC™ HP Treatment	Nimue-SPC™ P Treatment	Smart Resurfacer Treatment	Micro-needling Treatment
Date								
Layers/Min								
Super Fluid/s								
Nimue-TDS™								
Mask								
Date								
Layers/Min								
Super Fluid/s								
Nimue-TDS™								
Mask								

### Nimue product plan

basics	sun protection	corrective serum	skin regulator
Cleansing Gel	SPF 40	Corrective Serum	Skin Regulator
Cleansing Milk	Tinted SPF 40 (L,M,D)	Stemplex Serum	Vitamin C Moisture Mist
Conditioner	Environmental Shield SPF 50	Fader Serum	Hydro Lip Protection
Cleansing Gel/Lite	SPF 50 Body Sport	additives	Pie & Post Serum
Conditioner Lite	Alter Sun Hydrator	Problematic Spot Treatment	Nimue-TDS™ Environmentally Damaged
Exfoliating Enzyme	barrier protection	Fade Treatment	Nimue-TDS™ Hyperpigmented
Nimue Day	Element Barrier	Eye Make Up Remove	Nimue-TDS™ Problematic
Nimue Night	actives	Eye Treatment	Nimue-TDS™ Interactive
Multi Day Plus	Active Lotion	Eye Serum	age intelligent
Multi Night Plus	Active Gel	Anti-Ageing Eye Cream	AI Cleansing Cream
Moisturiser Lite	foundation	Collagen Eye Film	AI Day Cream
Purifier	Pro Age Foundation	Rejuvenating Mask	AI Night Cream
Day/Fader	boosters	Clarifying Mask	AI Eye Serum
Night/Fader	Alpha Lipic Activator	Super Hydrating Mask	AI Face Serum
Day/Fader Plus	Multi Rejuvenating Serum	Glyco Mask	AI Neck & Décolleté
Night/Fader Plus	Super Hydrating Serum	Anti-Ageing Leave on Mask	
		Skin Refiner	

# Professional Consultation

## Client Consent Form



### client information and consent form

#### Nimue Rejuvenation Treatments – non EU countries only

(To be completed between Salon and Client before treatment)

Client name: \_\_\_\_\_ Therapist: \_\_\_\_\_

Client address: \_\_\_\_\_

Email address: \_\_\_\_\_ Tel No.: Home: ( ) \_\_\_\_\_ Work: ( ) \_\_\_\_\_ Cell: \_\_\_\_\_

Date of birth: \_\_\_\_\_ under 21  21 – 30  31 – 40  41 – 50  50 +  Male / Female  M  F

Active Rejuvenation	35% Glycolic	7.5% TCA	Thermal Detox Peel
<b>INDICATIONS</b>			
<input type="checkbox"/> Environmentally damaged skin	<input type="checkbox"/> Mature, delicate and dry skin conditions	<input type="checkbox"/> Acne & acne scarring	<input type="checkbox"/> All Nimue skin classifications
<input type="checkbox"/> Hyperpigmented skin		<input type="checkbox"/> Photoaged skin	<input type="checkbox"/> Dull complexion
<input type="checkbox"/> Problematic skin		<input type="checkbox"/> Hyperpigmented skin	<input type="checkbox"/> Rough textured skin
		<input type="checkbox"/> Dilated pores/Sallow complexion	<input type="checkbox"/> Fine lines & wrinkles

Nimue-SRC™ Environmentally Damaged	Nimue-SRC™ Hyperpigmented	Nimue-SRC™ Problematic	Smart Resurfacer
<b>INDICATIONS</b>			
<input type="checkbox"/> Environmentally damaged skin	<input type="checkbox"/> Hyperpigmentation	<input type="checkbox"/> Problematic skin (Acne & Acne prone)	<input type="checkbox"/> Ageing/photoaged skin
<input type="checkbox"/> Fine lines & wrinkles	<input type="checkbox"/> Environmentally damaged skin	<input type="checkbox"/> Oily, congested skin conditions	<input type="checkbox"/> Hyperpigmented skin
			<input type="checkbox"/> Problematic skin
			<input type="checkbox"/> Rough textured skin

<b>CONTRA-INDICATIONS</b>			
<input type="checkbox"/> Must be used with caution on darker skins and phototypes IV, V, VI	<input type="checkbox"/> Very Sensitive skin and severe capillaries	<input type="checkbox"/> Dermatitis/Eczema	<input type="checkbox"/> Use of Cortisone, Isotretinoin, Accutanes, skin resurfacing lasers or deep peeling procedure in the past 8 weeks
<input type="checkbox"/> Active skin lesions or any skin infection	<input type="checkbox"/> Waxing, electrolysis, shaving or use of depilatory creams in the past 3 days	<input type="checkbox"/> Facial surgery in the past 8 weeks	<input type="checkbox"/> Botox/Fillers in the past 4 weeks
<input type="checkbox"/> Allergy to Aspirin (contra-indicated for Nimue-SRC™ Problematic & Smart Resurfacer)	<input type="checkbox"/> Skin cancer - avoid any treatments until a medical consent form is presented		

I, \_\_\_\_\_, consent to the treatment known as \_\_\_\_\_ (select one of above treatments). The effect and nature of the treatment to be given as well as possible alternative methods of treatment, have been fully explained to me. I am advised that though good results are expected, they cannot and are not guaranteed to be effective, nor can there be any guarantee against untoward results. I am fully aware of the risk, if any and accept that Nimue shall not be held responsible for any damage, loss or liability incurred or suffered resulting from my participation.

**I have been informed fully and properly that, following any of the above treatment procedures, the following might occur:**

- Some skin discomfort during and after the procedure such as, tingling, itching, burning, tightness, dry patches and flaking or peeling of superficial layer of the skin.
- Temporary skin reddening.
- Breakouts resulting from the treatment procedure, which can be managed with home care.
- These manifestations will gradually diminish over the course of a week. However, some clients might react differently and experience very few side effects or no flaking or peeling. Although rare, the skin may be uncomfortable and look like very bad sunburn. The flaking usually lasts about 3 to 7 days, although it might vary.
- I have been advised to follow the prescribed application of Nimue home care products and that without daily use of sunscreen the treatment for my condition might fail.
- Both the Salon and Nimue, where applicable, undertake to keep all of the information contained herein confidential and shall not disclose such information to any third parties, other than where reasonably required to do so by law or as otherwise authorised by the Client.

I understand that there is a small incidence of the reactivation of "cold sores" (herpes infection) in clients with a prior history of herpes. There is also an incidence of the flare up of acne-like lesions resulting from the peel.

Signed on this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

Client's Name: \_\_\_\_\_ Therapist Name: \_\_\_\_\_

Client's Signature: \_\_\_\_\_ Therapist Signature: \_\_\_\_\_

Staff Witness Name: \_\_\_\_\_ Signature: \_\_\_\_\_

On behalf of the Salon: \_\_\_\_\_ (Salon name): \_\_\_\_\_

i n d e x

# section 9

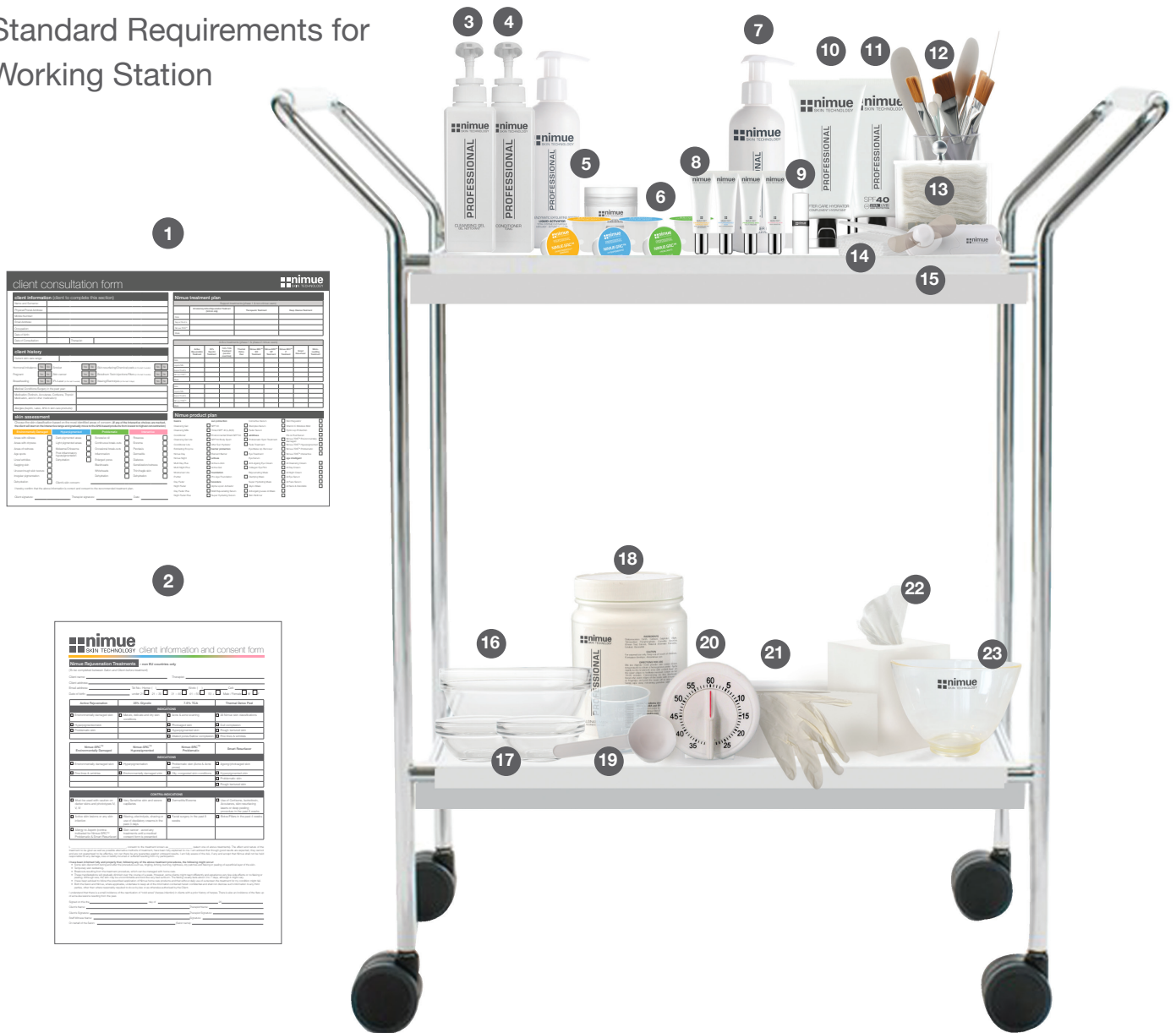
## **Professional Treatments and Procedures**

- Standard Requirements for Working Station
- Brush Application Method
- General Precautions
- Treatment Indications and Benefits
- Treatment Contra-indications
- Treatment Procedure
- General Post Treatment Guidelines



# Professional Treatments and Procedures

## Standard Requirements for Working Station



1	Client Consultation Form	9	Hydro Lip Protection	17	Small bowl
2	Client Consent Form	10	After Care Hydrator	18	Alginate Mask
3	Cleansing Gel	11	SPF 40	19	Measuring spoon & cup
4	Conditioner	12	Spatulas, brushes and sponge applicators	20	Clock/Timer
5	Tetra Enzymatic Exfoliating System	13	Gauze	21	Latex/Vinyl gloves
6	Nimue-SRC™	14	Cotton buds	22	Tissues
7	Neutraliser Plus	15	Fan	23	Rubber bowl
8	Nimue-TDS™	16	Large bowl		

# Professional Treatments and Procedures

## Nimue Professional Treatment Room

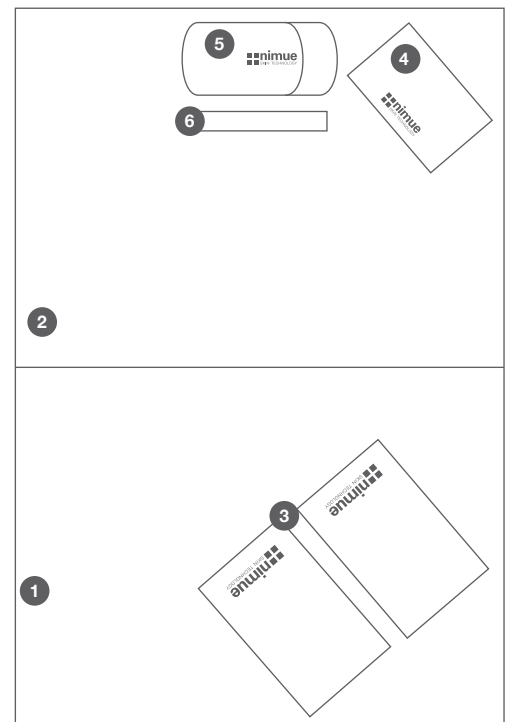


The photo and diagram indicates the layout of the Nimue treatment bed and the placement of the linen. Please see the linen requirements as indicated.

1	Nimue Towel
2	Nimue Towel
3	Nimue Towels
4	Nimue Small Hand Towel
5	Nimue Headband
6	Disposable Cap



A visual example of a client lying on the treatment bed, making use of the treatment bed elements that are being displayed on the left hand side drawing



# Professional Treatments and Procedures

## Nimue Professional Treatment Room

### Trolley Equipment

- 2 facial bowls with warm water:
  - 1 for the removal of Cleansing Gel
  - 1 for the removal of Tetra Enzymatic Exfoliating System
- 1 small Nimue rubber bowl for Tetra Enzymatic Exfoliating System
- 1 small glass bowl for decanting Nimue-SRC™
- 1 bowl for Neutraliser Plus
- 1 brush for the Tetra Enzymatic Exfoliating System
- 1 brush for the Nimue-SRC™ Environmentally Damaged
- 1 sponge applicator for the Nimue-SRC™ Hyperpigmented or Problematic
- 1 special Alginate mixing bowl - Nimue rubber bowl
- 1 Spatula
- 1 Alginate Mask measuring cup and measuring scoop

### Disposable Items

- 1 Disposable headband
- 1 Pair of disposable latex/vinyl gloves
- Gauze swabs
- Nimue disposable compresses
- Cotton pads
- Tissues
- Cotton tips

### General Items

- 1 Magnifying lamp
- 1 Steamer
- 1 Fan
- 1 Timer
- Eyedrops

### Treatment Bed

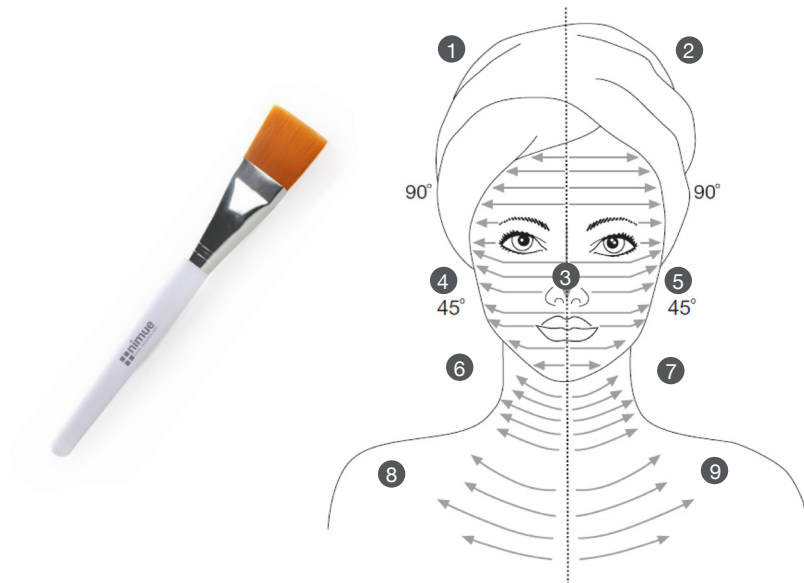
- Linen for setting of bed
- Boob tube/gown for client
- Paper towel to cover linen under client's head and shoulders
- Waste bin with plastic liner

# Professional Treatments and Procedures

## Brush Application Method

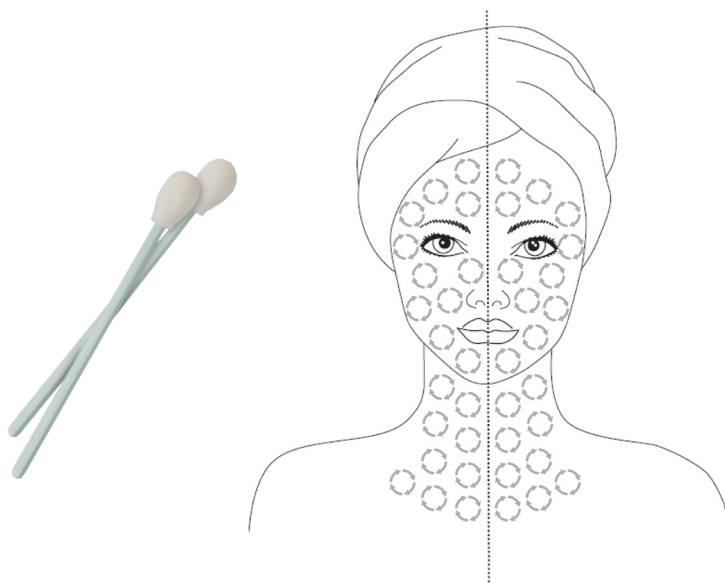
### Nimue-SRC™ Environmentally Damaged

Apply evenly with a **dry brush** starting at the forehead and working your way down the neck in parallel lines.



### Nimue-SRC™ Hyperpigmented and Problematic

Apply an even application of Nimue-SRC™ Hyperpigmented and Problematic to the skin with the sponge applicator using circular movements. Start from the forehead and work down towards the neck and décolleté.



Apply the above products with slow and accurate strokes, utilising a magnifying lamp to ensure optimum application.

# Professional Treatments and Procedures

## General Precautions

- Eliminate any contra-indications and/or precautions
- Clients must remove soft contact lenses prior to treatment
- Avoid holding Nimue-SRC™ products above clients eyes
- Avoid application of active products on client's lips and nostrils as it dries the mucous membranes
- Client should keep eyes closed during treatment. In case of contact with eyes, flush with eye drops and water
- Use latex/vinyl gloves for all acid based treatments
- Always explain to clients what to anticipate

# Professional Treatments and Procedures

## Treatment Indications and Benefits

### Nimue-SRC™ Treatment

1 hour

- The Nimue-SRC™ in combination with Neutraliser Plus
- Provides progressive and superficial resurfacing of the skin, stimulating epidermal growth through the removal of damaged layers of the stratum corneum

#### Skin classification indications:-

#### Nimue-SRC™ ED - Environmentally Damaged Skin

- Nimue-SRC™ ED may only be used on clients on Nimue phase 1 and 2 homecare products (do not use as client's first professional treatment)
- Indicated for any skin type requiring anti-ageing benefits
- Avoid using on Problematic and/or Interactive skin
- Must be used with caution on darker skin & phototypes IV, V and VI
- Highly specialised anti-ageing treatment - improves the appearance of ageing skin and preserves young skin



#### Key Benefits

- Reduced fine lines and wrinkles
- Assists in improving dark/age spots
- Smooths the skin
- Provides instant radiance

# Professional Treatments and Procedures

## Treatment Indications and Benefits

### Nimue-SRC™ Treatment

#### Nimue-SRC™ HP - Hyperpigmented Skin

- Nimue-SRC™ HP may only be used on clients on Nimue phase 1 and 2 homecare products (do not use as client's first professional treatment)
- Indicated for any skin type requiring skin brightening and evening of skin tone
- Avoid using on Problematic and/or Interactive skin
- Must be used with caution on darker skin & phototypes IV, V and VI
- Highly specialized treatment for hyperpigmented skin - improves the appearance of hyperpigmentation and refines the skin



#### Key Benefits

- Brightens the skin
- Suppresses tyrosinase formation
- Accelerates the exfoliation of hyperpigmented cells
- Reduces inflammatory responses to prevent PIH
- Refines and softens the skin

#### Nimue-SRC™ P - Problematic Skin

- Nimue-SRC™ P may only be used on clients on Nimue phase 1 and 2 homecare products (do not use as client's first professional treatment)
- Indicated for any skin type requiring decongestion and skin exfoliation
- Avoid using on Environmentally Damaged, Hyperpigmented and/or Interactive skin
- Must be used with caution on darker skin & phototypes IV, V and VI
- Highly specialized treatment for problematic skin (acne prone and active acne conditions) - refines and softens the skin, helping to reduce pore size



#### Key Benefits

- Exfoliates and decongests
- Antibacterial action
- Improves skin texture and pore size

# Professional Treatments and Procedures

## Treatment Contra-indications

- Very sensitive skin and severe capillaries
- Dermatitis/Eczema
- Use of Cortisone, Isotretinoin, Accutanes, skin resurfacing lasers or deep peeling procedures in past 8 weeks
- Botulinum toxin and fillers in past 4 weeks
- Active skin lesions or any skin infection
- Waxing, electrolysis, shaving or use of depilatory creams in past 3 days
- Uncontrolled diabetes - perform a patch test to determine skin sensitivity)
- Do not use on a compromised barrier
- Hormonal skin - perform a patch test to determine skin sensitivity
- Allergy to aspirin (Nimue-SRC™ Problematic)

# Professional Treatments and Procedures

## Treatment Procedure

Treatment steps	Treatment description	Nimue products
Step 1	Consultation	Client Consultation Form & Consent Form
Step 2	Cleanse	Cleansing Gel
Step 3	Condition	Conditioner
Step 4	Barrier Protection	Hydro Lip Protection
Step 5	Exfoliate	Tetra Enzymatic Exfoliator

### Guidelines for the use of Tetra Enzymatic Exfoliator 1 scoop (25ml) Enzyme Powder + 15ml (± 10 pumps) Liquid Powder

	Total Time	Steam	Steam and Massage
Combination Skin	10 minutes	4 minutes	6 minutes
Oily, Acne Skin	10 minutes	8 minutes	2 minutes
Dry Skin	10 minutes	2 minutes	8 minutes
Excessive Dry Skin	6 minutes	4 minutes	2 minutes

Step 6	Prep	Alcohol Pad
Step 7	Barrier Protection	Hydro Lip Protection
Step 8	Active Treatment	Nimue-SRC™ Treatment
Step 9 (optional)	Super Fluids to be mixed with Nimue-SRC™ (max of 2 Super Fluids)	Retinol Super Fluid/Vitamin C Super Fluid/ Prebiotic Super Fluid/Transdermal NAD Super Fluid/Cyanoacrylate Super Fluid

### Guidelines for Nimue-SRC™ Treatments

Nimue-SRC™ Treatment	Skin Classification	Number of Treatments	Time of Application	Treatment Frequency
<b>Environmentally Damaged Skin</b> (apply with brush)	20 - 30 years	6 - 8	5 minutes	6 weeks
	30 - 40 years	6 - 8	5 - 10 minutes	3 weeks
	40+ years	6 - 8	5 - 10 minutes	4 weeks
	Photo Types IV, V, VI	6 - 8	5 minutes	4 - 6 weeks
<b>Hyperpigmented Skin</b> (apply with sponge applicator)	Mild Pigmentation	6 - 12	5 - 10 minutes	2 weeks
	Severe Pigmentation	6 - 12	5 - 10 minutes	4 weeks
<b>Problematic Skin</b> (apply with sponge applicator)	Acne Prone	6 - 12	5 minutes	4 weeks
	Active Acne	6 - 12	5 - 7 minutes	2 weeks

Step 9	Neutralise	Neutraliser Plus ONLY
Step 10	Nimue-TDS™	Optional Extra: Nimue-TDS™
Step 11	Mask	Optional Extra: Alginate Mask
Step 12	Aftercare	After Care Hydrator/Hyaluronic Acid Gel
Step 13	Sun Protection	SPF 40

# Professional Treatments and Procedures

## General Post Treatment Guidelines

- Avoid make up application for a minimum of 3 - 4 hours post Nimue-SRC™ treatment
- Do not use Active Lotion/Gel on the same day as Nimue-SRC™ treatment
- A Nimue prescribed SPF face product **MUST** be utilised on a daily basis. Re-apply every 2 - 3 hours, if exposed to UV radiation
- Prolonged sun exposure and sun bed use **MUST** be avoided during a course of Nimue-SRC™ treatments
- Reduce the use of Nimue Conditioner and Active Lotion/Gel for a few days if skin feels sensitive
- Inform client that should any persistent erythema, redness, swelling or irritation occurs, Nimue Skin Treatment Professional must be informed immediately
- Wait at least 3 days before any facial waxing post treatment
- **Full client co-operation is needed to achieve desired results**

i n d e x

# section **10**

## **Guidelines to Nimue treatment prescriptions**

- Introduction
- Environmentally damaged skin
- Hyperpigmented skin
- Problematic skin



# Guidelines to Nimue treatment prescriptions

## Introduction

Criteria for selecting the various treatments to make up a Nimue course of treatments depends on the following:

- The client's primary skin concern
- The client's experience of the treatment
- How the skin immediately responds to the treatment and short term results
- Long term results following the treatment
- The above criteria will determine the way forward with a course of treatments
- Therapist experience and analysis of the skin is extremely important when choosing the treatments for the course
- The severity of the skin condition and the health of the skin at the start of the treatment course needs to be taken

## Caution

- Do not overstimulate the skin
- Duration between treatments depends on the skin photo type of the client and existing hyperpigmentation or inflammation that may be present on the skin
- A slow and gradual process must be adhered to
- The client needs to be made aware that achieving optimal skin health may take time and it requires patience and dedication to the suggested treatment plan
- Additionally, the treatment plan may be altered based on results seen and achieved during the course of treatment

# Guidelines to Nimue treatment prescriptions

## Environmentally damaged

Environmentally damaged skin (ageing / photo damage)	
<p>Treatments are done every 3-6 weeks* depending on skin sensitivity, photo type and age of the client. It is recommended to have a minimum of 1 Active Rejuvenation Treatment prior to a course of Nimue treatments, however, the existing skin condition and reaction to the active treatments must be taken into consideration.</p>	
Mild environmentally damaged - 6 week programme	
<p><b>Suggested Treatments</b>            2x Active Rejuvenation Treatments            4x Nimue-SRC™ ED Treatments</p>	<p><b>Suggested order of treatments</b>            Active Rejuvenation Treatment            Active Rejuvenation Treatment            Nimue-SRC™ ED Treatment            Nimue-SRC™ ED Treatment            Nimue-SRC™ ED Treatment            Nimue-SRC™ ED Treatment</p>
Severe environmentally damaged with hyperpigmentation - 8 week programme	
<p><b>Suggested Treatments</b>            2x Active Rejuvenation Treatments            4x Nimue-SRC™ ED Treatments            2x Nimue-SRC™ HP Treatments</p>	<p><b>Suggested order of treatments</b>            Active Rejuvenation Treatment            Active Rejuvenation Treatment            Nimue-SRC™ ED Treatments            Nimue-SRC™ HP Treatments            Nimue-SRC™ ED Treatments            Nimue-SRC™ HP Treatments            Nimue-SRC™ ED Treatments            Nimue-SRC™ ED Treatments</p>

\* With a higher Phototype, the treatments may need to be spaced further apart (refer to Section 5: Fitzpatrick Phototype). The above courses serves as a guideline only and each client's skin and individual concerns needs to be taken into consideration.

# Guidelines to Nimue treatment prescriptions

## Hyperpigmented

Hyperpigmented skin	
<p>Treatments are done depending on phototypes*. It is recommended to have a minimum of 1 Active Rejuvenation Treatment prior to a course of Nimue treatments, however, the existing skin condition and reaction to the active treatments must be taken into consideration.</p> <p>Correct homecare and sun protection is imperative. This treatment prescription is ideal to do during winter months. Advise clients to avoid exposure to direct sunlight.</p>	
Mild hyperpigmented skin - 6 week programme	
Treatments are done on a 2 - 3 week* basis depending on the skin sensitivity and photo type of the skin.	
<p><b>Suggested Treatments</b></p> <p>2x Active Rejuvenation Treatments 4x Nimue-SRC™ ED Treatments</p>	<p><b>Suggested order of treatments</b></p> <p>Active Rejuvenation Treatment Active Rejuvenation Treatment Nimue-SRC™ ED Treatment Nimue-SRC™ ED Treatment Nimue-SRC™ ED Treatment Nimue-SRC™ ED Treatment</p>
Severe environmentally damaged with hyperpigmentation	
Treatments are done on a 4 - 6 week basis* depending on the skin sensitivity and photo type of the skin.	
<p><b>Suggested Treatments</b></p> <p>2x Active Rejuvenation Treatments 4x 35% Glycolic Treatments 6x Nimue-SRC™ HP Treatments</p>	<p><b>Suggested order of treatments</b></p> <p>Active Rejuvenation Treatment Active Rejuvenation Treatment Nimue-SRC™ HP Treatment 35% Glycolic Treatment Nimue-SRC™ HP Treatment 35% Glycolic Treatment Nimue-SRC™ HP Treatment 35% Glycolic Treatment Nimue-SRC™ HP Treatment 35% Glycolic Treatment Nimue-SRC™ HP Treatment 35% Glycolic Treatment Nimue-SRC™ HP Treatment</p>

\* With a higher Phototype, the treatments may need to be spaced further apart (refer to Section 5: Fitzpatrick Phototype). The above courses serves as a guideline only and each client's skin and individual concerns needs to be taken into consideration.

# Guidelines to Nimue treatment prescriptions

## Problematic

Problematic skin	
Treatments are done depending on level of acne condition. It is recommended to have a minimum of 1 Active Rejuvenation Treatment prior to a course of Nimue treatments, however, the existing skin condition and reaction to the active treatments must be taken into consideration.	
Acne prone skin - 6 week programme	
Treatments are done on a bi weekly* basis depending on the skin sensitivity and inflammation.	
<b>Suggested Treatments</b> 2x Active Rejuvenation Treatments 2x 35% Glycolic Treatments 2x Nimue-SRC™ P Treatments	<b>Suggested order of treatments</b> Active Rejuvenation Treatment Active Rejuvenation Treatment 35% Glycolic Treatment Nimue-SRC™ P Treatment 35% Glycolic Treatment Nimue-SRC™ P Treatment
EU Countries: Active acne - 12 week programme	
Treatments are done on a bi weekly* basis depending on the skin sensitivity and inflammation.	
<b>Suggested Treatments</b> 2x Active Rejuvenation Treatments 4x 35% Glycolic Treatments 6x Nimue-SRC™ P Treatments	<b>Suggested Order of treatments</b> Active Rejuvenation Treatment Active Rejuvenation Treatment 35% Glycolic Treatment Nimue-SRC™ P Treatment 35% Glycolic Treatment Nimue-SRC™ P Treatment 35% Glycolic Treatment Nimue-SRC™ P Treatment 35% Glycolic Treatment Nimue-SRC™ P Treatment Nimue-SRC™ P Treatment Nimue-SRC™ P Treatment

\* With a higher Phototype, the treatments may need to be spaced further apart (refer to Section 5: Fitzpatrick Phototype). The above courses serves as a guideline only and each client's skin and individual concerns needs to be taken into consideration.









