

# UV Curing in Nail Salons

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# Overview of Topics

UV Nail Coatings

UV Nail Lamps

The ingredients found in fingernail applications have been in use for more than 30 years, with a long history of safe use and the latest generation are better and safer than ever!

## Nail Salon Coatings



Artificial nails enhance and beautify the hands.

Two types of UV Gel salon services  
are provided:

UV Gel “Enhancements”

UV Gel “Manicures”

Two types of UV Gel salon services  
are provided:

## UV Gel “Enhancements”

Alter appearance, shape, color and  
length of the natural nail.

Two types of UV Gel salon services  
are provided:

### UV Gel “Manicure”

Alter the appearance and color,  
but are coatings which don't add  
length to the natural nail.

## Types of UV Gels

### Hard Gels

Don't Soak Off Easily

Used to coat and/or extend  
the natural nail.

### Soft Gels

Soak Off Easily

Used to coat and/or extend  
the natural nail.

### Gel Manicure/Polish

Soak Off Easily

Used to coat the natural nail, not extend.





UV Gel Manicure

## Important Issues

- Salon application by licensed nail professionals.
- Heed manufacturer's instructions/precautions.
- Avoid skin contact with uncured coating.
- Properly maintain and remove coatings.

Absorbent pad holds  
remover to the nail plate.



- Correct removal can be achieved with several methods.
- Typically acetone is used to remove coatings, 10-30 minutes.



# UV Nail Lamps



Typically, three or four layers of the UV coatings are applied stepwise to each finger on the hand and each layer is typically cured between one to two minutes under a UV nail lamp with two to four 9-watt fluorescent tubes.



- Services are performed every two or three weeks.
- Each hand is exposed a total of between six to ten minutes.
- Low level UV; not at all like a tanning bed.
- Tanning beds use eight to ten 100 watt UV bulbs.
- Nail lamps use two to four 9 watt UV bulbs.
- The skin is never burned or tanned by even regular use.



In the “Observations” section of a dermatology journal<sup>1</sup>, Texas dermatologists MacFarlane and Alonso raised concerns about two patients with nonmelanoma cancers on their hands.

<sup>1</sup> Arch Dermatol. 2009; 145(4): 447-449



Case 1: A 55 year old woman living in Texas who claimed to have had UV artificial nails applied for 15 years, twice/month.





Case 2: A 48 year old woman living in **Texas** with a history of “moderate recreational exposure” and receiving only **eight** (8) nail services in one year in her entire lifetime.

## Their Conclusions

“It appears that the exposure to UV lights is a risk factor for the development of skin cancer; however, **this observation warrants further investigation**. In addition, awareness of this possible association may help physicians indentify more skin cancers and better educate patients.”

<sup>1</sup> Arch Dermatol, 2009; 145(4): 447-449

The

... and two studies  
were conducted!

“It appears that the exposure to UV light is a risk factor for the development of skin cancer; however, this observation warrants further investigation. In addition, awareness of this possible association may help physicians identify more skin cancers and better educate patients.”

# “Do UV Nail Lamps Emit Unsafe Levels of Ultraviolet Light?”

Three Experts **Rebut** Claims that  
UV Nail Lamps are Unsafe for Skin

Schoon, Bryson and McConnell

Found at:  
[www.probeauty.org/nmc](http://www.probeauty.org/nmc)

# Testing

**Study 1:** An independent laboratory tested the two most widely used, brand name UV nail salon lamps, one with four 9-watt bulbs, the other with two 9-watt bulbs.

# Test Results

(10 minute exposure to UV nail lamp)

UVB

UVB output is far less than natural sunlight exposure.

# Test Results

(10 minute exposure to UV nail lamp)

**UVA**

UVA output equivalent to spending an extra 2 minutes or less of natural sunlight each day between services.

# Conclusions

A twice monthly UV nail service  
compares to adding about two minutes natural  
sunlight exposure each day!



# Testing

**Study 2:** Laboratory tests conducted by leading PhD.

Researcher Dr. Robert Sayre and Dr. John Dowdy. This well known research team tested identical UV nail salon lamps, as well as several additional UV nail lamps.

## Testing

The following test results show the level of UV measured inside the lamp and 1 cm above the level of the hand platform to measure the likely UV exposure for the hand and to allow for a calculation of the permissible daily exposure based on the ANSI/IESNA RP-27 standard.

## Lamp Classification

Indicates potential risk which may or may not actually become hazards, since this depends largely on length of exposure, as well as the UV output of the device.

## Actinic UV Hazard Risk Group

Exempt : No hazard with 8 hours of exposure.

Low Risk: No hazard with 2.8 hours of exposure.

Moderate Risk: No hazard with 16.6 minutes of exposure.

High Risk: Hazard with momentary or brief exposure.

The following table shows the safe daily exposure level expressed as:

A. minutes of allowable exposure per day.

B. the actual percentage of the allowable daily exposure, assuming 10 minutes salon exposure.

Lamp 1- 29.8 minutes permissible daily exposure time  
(1.676  $\mu\text{W}/\text{cm}^2$ ) 34% of actual maximum daily exposure

Lamp 2- 36.0 minutes permissible daily exposure time  
(1.2-1.4  $\mu\text{W}/\text{cm}^2$ ) 28% of permissible daily exposure

Lamp 3- 57.1 minutes permissible daily exposure time  
(1.02  $\mu\text{W}/\text{cm}^2$ ) 17.5% of permissible daily exposure

Lamp 4- 129.3 minutes permissible daily exposure time  
(0.39  $\mu\text{W}/\text{cm}^2$ ) 7.7% of permissible daily exposure

Important to note risks are further reduced since:

1. Exposure is not daily, but instead just **twice per month.**
2. Not continuous, but rather in short intervals as each layer cures on alternate hands.

The following table shows the safe daily exposure level expressed as the actual percentage of the allowable monthly exposure, assuming 10 minutes exposure twice per month.



Lamp 1- **2.2%** of allowable monthly exposure.

(1.676  $\mu\text{W}/\text{cm}^2$ )

Lamp 2- **1.9%** of allowable monthly exposure.

(1.2-1.4  $\mu\text{W}/\text{cm}^2$ )

Lamp 3- **1.2%** of allowable monthly exposure.

(1.02  $\mu\text{W}/\text{cm}^2$ )

Lamp 4- **0.5%** of allowable monthly exposure.

(0.39  $\mu\text{W}/\text{cm}^2$ )

After extensive testing of UV nail lamps, leading  
UV expert, Dr. Robert Sayre says,

*“Physicians are grossly exaggerating  
exposures.”*

After extensive testing of UV nail lamps, leading UV expert, Dr. Robert Sayre says,

*“...this UV source properly belongs in the least risky of all categories.”*

After extensive testing of UV nail lamps, leading UV expert, Dr. Robert Sayre says,

*“...units used in nail salons all have a UVA bulb that is VASTLY DIFFERENT from anything used for indoor tanning.”*

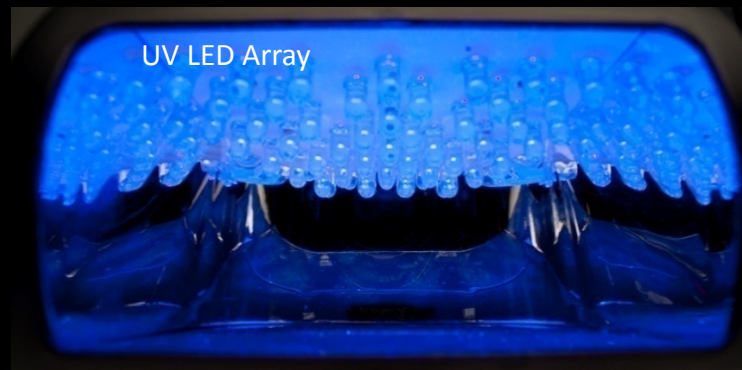
After extensive testing of UV nail lamps, leading UV expert, Dr. Robert Sayre says,

*“UV nail lamps are safer than natural sunlight or sunlamps.”*

## Test Results

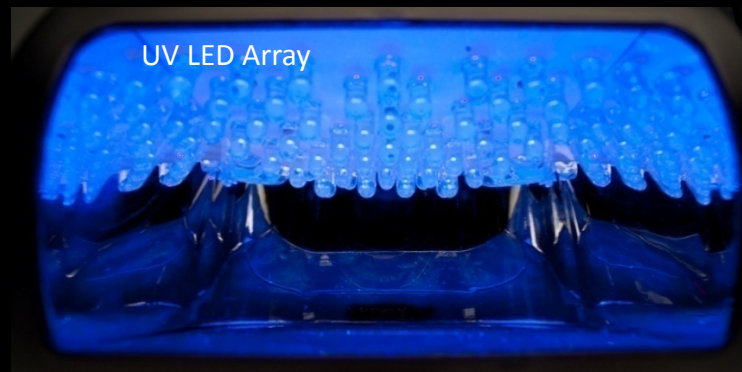
All types of UV nail salon lamps tested are  
“safe as used” according to the applicable  
safety testing and standards!

UV LED Nail Lamp



Newer UV LED nail lamps can further  
reduce UV exposure.


UV LED Nail Lamp



Largely due to shorter exposure times  
2 minutes vs. up to 10 minutes



## Still Concerned?

Wear SPF 15 broad spectrum **sunscreen**  or  
cover your hand with cloth to eliminate exposure!

Exaggerated reports unfairly attack the  
livelihood of nail technicians around the world!

## Conclusions

The scientific evidence demonstrates that when used appropriately and in accordance with all manufacturers instructions.

**UV Nail Lamps are  
Safe as Used in Salons!**

For Additional Information and Resources

Professional Beauty Association's  
Nail Manufacturer's Safety Council

NMC

[www.ProBeauty.org/NMC](http://www.ProBeauty.org/NMC)

# Thank You