



# TRAINING MANUAL Certified Tanning Professionals

2023-2025 Manual

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## Introduction

## About Suntan Supply

OUR MISSION, Suntan Supply will continue to fulfill all of your tanning needs through our professional staff, quality service, and ability to satisfy your expectations in an expedient manner.

We are a full service supplier of new and renewed tanning beds, lamps, acrylics, parts and more.

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# Table Of Contents

State Regulations.....	1
Federal Regulations.....	13
Sunless & Skin Care.....	17
Moisturizing.....	22
Skin.....	23
Red Light.....	30
UV Tanning.....	34
Lotions.....	35
Tanning Bed Lamps.....	37
Ultraviolet Radiation .....	45
Tanning Beds.....	48
Photosensitizers.....	49
Eye Protection.....	55
Customer Rapport.....	58
Tanning Bed Maintenance.....	59
References .....	

# Chapter 1

## State Regulations

### Rule 4713-19-02 | Definitions.

As used in Chapter 4713-19 of the Administrative Code:

- (A) A “certified operator” means an employee of a tanning facility who has successfully completed and successfully passed, with a minimum score of seventy-five per cent, a board-approved training course and holds a board-approved tanning operator certificate.
- (B) “Chemical tanning” means the application of chemicals to the skin to provide a tanned appearance without exposure to ultraviolet radiation, and includes chemical applications commonly referred to as spray-on, mist-on, or sunless tans.
- (C) “Chemical tanning booth” means an automated, electronic product that applies chemicals to the skin to provide a tanned appearance without exposure to ultraviolet radiation.
- (D) “Chemical airbrush” means an air-operated tool used by an individual to apply chemicals to the skin to provide a tanned appearance without exposure to ultraviolet radiation.
- (E) “Consumer” or “individual” means any member of the public who is seeking to use a tanning facility in exchange for a fee or other compensation;
- (F) “Formal training” means a course of instruction approved by the board that is conducted or presented in person, via internet, or through a correspondence course by a company employing persons possessing adequate knowledge and experience to offer a curriculum, associated training and certification testing pertaining to and associated with the correct use of sunlamp products. Training shall cover ultraviolet radiation and effects on the skin, photosensitivity, skin typing, FDA and state regulations, eye protection, and equipment maintenance.
- (G) “Other compensation” means the payment or exchange of goods, services, or anything of value for use of the tanning facility or facilities, including afforded use as a condition or benefit of membership or access;
- (H) “Sunlamp product” means any electronic product designed to incorporate one or more ultraviolet lamps and intended for irradiation of any part of the living human body, by ultraviolet radiation with wavelengths in air between two hundred and four hundred nanometers, to induce skin tanning. The term sunlamp product includes within its definition the terms “tanning booth” or “tanning bed.”
- (1) “Tanning Booth” means a sunlamp product in which an individual stands.
- (2) “Tanning Bed” means a sunlamp product in which an individual reclines.
- (I) “Ultraviolet radiation” for purposes of this chapter includes UVA (ultraviolet A), UVB (ultraviolet B), and UVC (ultraviolet C).
- (J) “Tanning operator certificate” means a certificate issued by an authorized provider to each person who successfully completes a formal training course. A tanning operator certificate is valid for four years from the date of issuance.
- (K) “Visible light” means the application of light rays in the visible spectrum to the skin for cosmetic purposes.
- (L) “Skin typing” means a numerical classification of skin to determine the length of exposure to UVA and UVB lights.

## **Rule 4713-19-01 | Application process and fee requirements.**

All applicants for a permit to operate a tanning facility shall apply on forms supplied by the board, and pay the applicable, nonrefundable fee. The fees for issuance of a tanning permit are:

(A) Seventy-five dollars for an original permit.

(B) Seventy dollars for renewal of permit

## **Section 4713.48 | Permit to operate tanning facility.**

(A) The state cosmetology and barber board shall issue a permit to operate a tanning facility to an applicant if all of the following conditions are satisfied:

(1) The applicant applies in accordance with the application process adopted by rules adopted under section 4713.08 of the Revised Code.

(2) The applicant pays to the treasurer of state the fee established by those rules.

(3) An initial inspection of the premises indicates that the tanning facility has been installed and will be operated in accordance with those rules.

(B) A permit holder shall post the permit in a public and conspicuous place on any premises where the tanning facility is located. An individual shall obtain a separate permit for each of the premises owned or operated by that individual at which the individual seeks to operate a tanning facility.

(C) To continue operating, a permit holder shall biennially renew the permit by the last day of January of each odd-numbered year. The board shall renew the permit upon the holder's payment to the treasurer of state of the biennial renewal fee.

## **Rule 4713-19-04 | Installation of equipment.**

No tanning equipment shall be installed in any tanning facility, unless the equipment and facility have been found to be in compliance with the following standards:

(A) Sunlamp products:

(1) Each tanning bed shall be located in a separate room with a lockable door, and the room shall have non-transparent walls of a sufficient height to ensure user privacy;

(2) Each sunlamp product shall be equipped with a timer which complies with the requirements of 21 CFR part 1040, Section 1040.20(C)(2), revised as of April 1, 2012 and cited as 21 CFR 1040.20. The maximum timer interval shall not exceed the manufacturer's maximum recommended exposure time. No timer interval shall have an error exceeding plus or minus ten per cent of the maximum timer interval for the product. Each new tanning facility shall install remote timer controls such that clients who are tanning cannot reset the timer;



(3) Each sunlamp product shall incorporate a control on the product, or within arm's reach of a user for products without a control installed on the unit by the manufacturer, to enable the user to manually terminate radiation without pulling the electrical plug or coming in contact with the ultraviolet lamp;

(4) Each lamp in a sunlamp product shall be shielded so as to prevent the lamp from having any contact with the individual using the sunlamp product. The shields shall not contain substantial cracks or breaks in or on any surface. Replacement shields must be similar in size and material to the original manufacturer's installed shields;

(5) Tanning booths shall have a handrail for use during operation;



- (6) Each tanning facility shall provide clear instructions on the correct body position for use of the sunlamp product;
- (7) Each sunlamp product shall be housed in a separate room, except when the sunlamp product also incorporates a dressing area in its design;
- (8) Sunlamp products shall not be altered;
- (9) Each sunlamp product shall prominently display the following, FDA-required labels:
  - (a) **“DANGER--Ultraviolet radiation.** Follow instructions. Avoid overexposure. As with natural sunlight, overexposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of the skin and skin cancer. **WEAR PROTECTIVE EYEWEAR; FAILURE TO MAY RESULT IN SEVERE BURNS OR LONG-TERM INJURY TO THE EYES.** Medications or cosmetics may increase your sensitivity to the ultraviolet radiation. Consult physician before using sunlamp if you are using medications or have a history of skin Rule 4713-19-01 | Application process and fee requirements.

All applicants for a permit to operate a tanning facility shall apply on forms supplied by the board, and pay the applicable, nonrefundable fee. The fees for issuance of a tanning permit are: problems or believe yourself especially sensitive to sunlight. If you do not tan in the sun, you are unlikely to tan from the use of this product.”

- (b) This sunlamp product should not be used on persons under the age of 18 years”;
- (10) Each tanning facility shall be equipped to dissipate heat so that the ambient temperature in the facility does not exceed one hundred degrees Fahrenheit or thirty-seven degrees Celsius;
- (11) Ultraviolet lamps, bulbs, and filters shall be replaced as recommended by the manufacturer, or as soon as they become defective or damaged. Only lamps, bulbs or filters that meet FDA requirements for any particular sunlamp product, or a certified compatible lamp, may be used in the operation of the sunlamp product. The facility shall maintain the manufacturers recommendations for lamps, bulbs, or filters on file in the facility, and shall produce copies of the lamp compatibility sheets upon inspection or request. Electronic versions of lamp compatibility sheets are acceptable;
- (12) Tanning facilities shall install lamps and bulbs in a manner that allows board inspectors to view the lamp or bulb label for comparison;
- (13) Each sunlamp product, bulb, or component shall not be altered or modified from the manufacturing specifications of the original product or used for purposes other than those noted in the owner’s manual for the product.

**(B) Chemical tanning products:**

- (1) Equipment or booths used to apply chemicals to human skin shall be installed and/or used in accordance with the manufacturer’s recommendations;
- (2) Facilities that offer spray-on, mist-on, or sunless tanning must have the following warning conspicuously posted in the facility”: **“Warning--This product does not contain a sunscreen and does not protect against sunburn. Repeated exposure of unprotected skin while tanning may increase the risk of skin aging, skin cancer, and other harmful effects of the skin even if you do not burn.”**

**(C) Cosmetic, visible light products:**

- (1) Equipment or booths that use visible light for cosmetic purposes shall be installed and/or used in accordance with the manufacturer’s recommendations;
- (2) Facilities shall not modify, alter, or use sunlamp products, chemical tanning products, or any other equipment or products that are not specifically designed to use visible light for cosmetic purposes to provide cosmetic, visible light services.

**Rule 4713-19-05 | Facility and equipment operation.**

**(A) Sunlamp products:**

- (1)** Each tanning facility offering sunlamp product services shall have a certified operator on duty at all times to instruct and assist the public in the proper operation and use of the sunlamp product. The certified operator shall be stationed in the immediate vicinity of any sunlamp product and closely monitor the services being provided to each individual seeking to use sunlamp product services.
- (2)** Each tanning facility shall require a certified operator for sunlamp product services to perform the following functions:
  - (a)** Make a reasonable attempt to determine the age of the individual seeking to use the sunlamp tanning service by requesting to see a current, valid drivers license or government-issued, picture identification containing the individual's birth date;
  - (b)** Obtain a signed consent form in compliance with section 4713.50 of the Revised Code (effective June 20, 2015) and maintained pursuant to paragraph (A)(2) of rule 4713-19-09 of the Administrative Code;
  - (c)** Provide, or make available, protective eyewear to each individual seeking to use the sunlamp product, and ensure that any protective eyewear provided by the facility is properly disinfected in accordance with rule 4713-19-06 of the Administrative Code;
  - (d)** Determine the skin type of the individual on the individual's first visit to the tanning facility, and note the skin type on the individual's tanning record, unless using a sunlamp product that is designed to automatically skin type each individual;
  - (e)** Establish the time period for the initial exposure and each subsequent exposure, based on skin type, until the individual seeking to use the sunlamp product service has reached the individual's maximum radiation level;
  - (f)** Instruct the individual seeking to use the sunlamp tanning service on the position of the safety railing in tanning booths; and the manual switching device to terminate the radiation in case of an emergency;
- (3)** Tanning facilities must post signs, immediately adjacent to each sunlamp product, warning consumers of the potential effects of radiation on persons taking medication and the possible relationship of radiation to skin cancer.
- (4)** Perform timer checks on beds with mechanical timers every time bulbs are changed, but at least annually, and maintain documentation of the timer checks. Timer checks are not required for beds with digital timers.
- (B)** Chemical tanning:
  - (1)** Facilities must provide each individual seeking to use the chemical tanning services with the following items:
    - (a)** Protective eyewear;
    - (b)** Lip balm; and
    - (c)** Nose filters.
  - (2)** Facilities shall require individuals seeking to use the chemical tanning services to cover sensitive areas containing mucous membranes during the application of chemicals to the skin.
  - (3)** Any chemical applied to the human skin must be applied in accordance with the manufacturers instructions and used prior to the expiration date listed on each container of product.
  - (4)** Facility personnel applying chemicals with a chemical airbrush must use an EPA-approved dust mask during chemical application.
  - (5)** For services provided outside of a salon, the service location must be reported to the board prior to the service on forms prescribed by the board. The board expressly reserves the right to inspect temporary chemical tanning facility premises at random and without notice.

**(C) General facility operation:**

- (1)** Facilities shall regularly inspect the facility to ensure that the floors are dry.
- (2)** Facilities shall ensure that non-absorbent flooring or rubber or plastic mats are in place where an individual enters or exits equipment used in the tanning process, and that the non-absorbent flooring or mats are disinfected after each use.
- (3)** Only one individual shall use tanning equipment during a session. No individual shall be permitted in any room where tanning equipment is operating and another individual is tanning.
- (4)** Each tanning facility shall maintain an owner's manual, in either paper or electronic form, for each sunlamp product that is used by the tanning facility, and produce such manual upon request.
- (5)** Tanning facilities are not permitted to store or provide sanitizers, disinfectants, or cleaners in tanning rooms.

**Rule 4713-19-06 | Infection control.**

- (A)** No article or equipment, including eyewear provided by the tanning facility, shall be offered for use to an individual unless that article has first been cleaned and disinfected with an appropriate disinfectant, unless the item is a single-use, disposable item.
- (B)** The walls, floors, ceilings, and fixtures in the facility shall be maintained in a safe condition, and kept in a clean and sanitary manner at all times.
- (C)** A clean sanitary towel shall be provided to all individuals seeking to use tanning services. A hamper or receptacle with solid sides shall be provided for all soiled towels and linen. A facility may use either paper or fabric towels. Fabric towels shall be laundered as set forth in rule 4713-15-11 of the Administrative Code. If the facility uses paper towels, each towel shall be properly disposed of after one use of the towel.
- (D)** All facilities shall be equipped with toilet facilities and dressing rooms. Toilet facilities shall include a flush toilet and hand washing sinks, including running water, pump soap, and a paper towel dispenser or equivalent hand drying equipment. All toilet facilities and dressing rooms shall be kept clean, sanitary, and functional at all times.
- (E)** Should blood or other bodily fluids need to be cleaned from any part of the facility or the equipment therein, the individual cleaning blood or other bodily fluids from the equipment or any part of the facility shall follow the procedure to sanitize and disinfect set forth in rule 4713-15-03 of the Administrative Code.

**Rule 4713-15-03 | Disinfection of implements and spills; blood and body fluids.**

- (A)** Disinfectants are inactivated and ineffective when the implement to be disinfected is visibly contaminated with debris, hair, dirt, oils, particulates, and/or when heavily soiled. Thus, non-porous implements and all barber shop and salon surfaces shall be thoroughly cleaned prior to disinfection.
- (1)** All used non-porous implements, including all types of brushes with synthetic bristles, shall first be cleaned with soapy/ detergent water to remove dirt, debris, and or bodily fluids, and then disinfected by completely immersing in an appropriate disinfectant prior to use on a new patron. A clean, covered container of adequate size shall be used for the wet disinfectant.
- (2)** All barber shop and salon surfaces shall be thoroughly cleaned and then disinfected with an appropriate disinfectant before beginning a service.
- (3)** Disinfectants shall be prepared fresh at least daily. Disinfectants shall be prepared more than once a day if the solution becomes diluted or soiled.
- (4)** To ensure proper disinfection, non-porous implements and surfaces shall remain in contact with the appropriate disinfectant for the contact time recommended by the manufacturer, or for at least ten minutes if using a bleach solution.



- (B) Porous implements, including all types of brushes with natural bristles, shall be discarded after each use and shall not be cleaned or disinfected for reuse.
- (C) All bottles and/or containers other than the original manufacturers' container used for application of an appropriate disinfectant shall be properly labeled as to the contents.
- (D) All spills of blood and/or bodily fluids shall be cleaned as soon as possible and disinfected with an appropriate disinfectant.
- (1) Nonporous, single-use gloves shall be used to pick up waste.
- (2) Any towel, cloth, or other item used to clean a spill of blood or bodily fluids shall be discarded by placing in double bags, or in a biohazard container.
- (3) Any clothing affected by the spill shall be removed prior to returning to work.
- (4) Any mops, brushes, buckets, or similar items used to clean the spill area shall be disinfected by immersing in a bleach solution mixed and used in accordance with rule 4713-1-01 of the Administrative Code.
- (E) Any unused porous items and all clean and disinfected implements shall be stored in a closed, dustproof cabinet, drawer, or container.
- (F) Any straight razor that has been stropped using a porous strop must be cleaned and disinfected in accordance with paragraph (A)(1) of this rule prior to use on a patron.

### Rule 4713-19-08 | Resident tanning facilities

- (A) A tanning facility may be located in a residence, provided the tanning facility shall have an entrance to the outside separate from the living quarters or garage of the residence. If the tanning facility has doors within its interior that allow access into the living quarters, garage, or basement of the residence, the doors shall be solid, have a wood frame or other solid frame, shall be able to be secured, and shall be kept closed during the time when the tanning facility is open for business. The tanning facility shall also be equipped with at least one restroom, which must include a toilet and a sink with running water, that is separate from the living quarters, garage, and basement of the residence.
- (B) Residential tanning facilities shall be subject to all laws of Chapter 4713. of the Revised Code and the rules promulgated under it in order to obtain and maintain a permit, and shall comply with all licensure and operating requirements prescribed in this chapter for tanning facilities.

### Section 4713.49 | Tanning facility at salon or school.

The owner or manager of a salon that has a permit issued under section 4713.48 of the Revised Code may operate a tanning facility at the salon or school.

### Rule 4713-19-09 | Maintaining records for sunlamp product services

- (A) The operator of a tanning facility shall maintain a file for each individual seeking to use the sunlamp tanning service. Each file shall include :
  - (1) Date of most recent exposure to UVA/UVB, including any dates provided by the individual documenting recent exposure in other tanning facilities;
  - (2) Copies of the consent forms developed by the Ohio state cosmetology and barber board that have been signed by the individual, parent, or legal guardian, in accordance with division (B) of section 4713.50 of the Revised Code based upon the age of the individual seeking to use the sunlamp tanning service;
  - (3) A record of the individual's skin type, the date the determination was made, and the certified operator who made the skin type determination;

- (4) Acknowledgment of receipt of protective eyewear or that the individual will use their own approved eyewear;
- (5) Acknowledgment that the individual has been advised of maximum exposure time for the session in the unit to which the individual has been assigned;
- (B) Tanning facilities that maintain records on computer or data processing equipment may use a single paper sign-in sheet for all individuals tanning in a single day. By the end of every day the tanning facility is open for business, the tanning facility shall transfer the information from the paper sign-in sheet to the individual's permanent file.
- (C) Tanning facilities that utilize electronic signatures and/or biometric identification may utilize the electronic scan or electronic signature in place of a paper sign-in sheet as noted in paragraph (B) of this rule.during some times of the year, depending on the volume of enacted legislation

### **Section 4713.50 | Age restrictions for tanning services.**

- (A) A tanning facility operator or employee shall make reasonable efforts, in accordance with procedures established under section 4713.08 of the Revised Code, to determine whether an individual seeking to use the facility's sun lamp tanning services is less than sixteen years of age, at least sixteen but less than eighteen years of age, or eighteen years of age or older.
- (B) (1) A tanning facility operator or employee shall not allow an individual who is eighteen years of age or older to use the facility's sun lamp tanning services without first obtaining the consent of the individual. The consent shall be evidenced by the individual's signature on the form developed by the state cosmetology and barber board under section 4713.51 of the Revised Code. The consent is valid indefinitely.
- (2) A tanning facility operator or employee shall not allow an individual who is at least sixteen but less than eighteen years of age to use the facility's sun lamp tanning services without first obtaining the consent of a parent or legal guardian of the individual. The consent shall be evidenced by the signature of the parent or legal guardian on the form developed by the board under section 4713.51 of the Revised Code. The form must be signed in the presence of the operator or an employee of the tanning facility. The consent is valid for ninety days from the date the form is signed. A tanning facility operator or employee shall not allow an individual who is at least sixteen but less than eighteen years of age to use the facility's sun lamp tanning services for more than forty-five sessions during the ninety-day period covered by the consent. No such session may be longer than the maximum safe time of exposure specified in rules adopted under division (A)(17) of section 4713.08 of the Revised Code.
- (3) A tanning facility operator or employee shall not allow an individual who is less than sixteen years of age to use the facility's sun lamp tanning services unless both of the following apply:
  - (a) The tanning facility operator or employee obtains the consent of a parent or legal guardian of the individual prior to each session of the use of the facility's sun lamp tanning services. The consent shall be evidenced by the signature of the parent or legal guardian on the form developed by the board under section 4713.51 of the Revised Code. The form must be signed in the presence of the operator or an employee of the tanning facility.
  - (b) A parent or legal guardian of the individual is present at the tanning facility for the duration of each session of the use of the facility's sun lamp tanning services.
- (C) For purposes of division (B) of this section, an electronic signature may be used to provide and may be accepted as a signature evidencing consent.

### **Section 4713.50 | Age restrictions for tanning services.**

- (A) A tanning facility operator or employee shall make reasonable efforts, in accordance with procedures established under section 4713.08 of the Revised Code, to determine whether an individual seeking to use the facility's sun lamp tanning services is less than sixteen years of age, at least sixteen but less than eighteen years of age, or eighteen years of age or older.

- (B) (1) A tanning facility operator or employee shall not allow an individual who is eighteen years of age or older to use the facility's sun lamp tanning services without first obtaining the consent of the individual. The consent shall be evidenced by the individual's signature on the form developed by the state cosmetology and barber board under section 4713.51 of the Revised Code. The consent is valid indefinitely.
- (2) A tanning facility operator or employee ***shall not allow an individual who is at least sixteen but less than eighteen years of age to use the facility's sun lamp tanning services without first obtaining the consent of a parent or legal guardian of the individual.*** The consent shall be evidenced by the signature of the parent or legal guardian on the form developed by the board under section 4713.51 of the Revised Code. The form must be signed in the presence of the operator or an employee of the tanning facility. The consent is valid for ninety days from the date the form is signed. A tanning facility operator or employee shall not allow an individual who is at least sixteen but less than eighteen years of age to use the facility's sun lamp tanning services for more than forty-five sessions during the ninety-day period covered by the consent. No such session may be longer than the maximum safe time of exposure specified in rules adopted under division (A) (17) of section 4713.08 of the Revised Code.
- (3) A tanning facility operator or employee shall not allow an individual who is less than sixteen years of age to use the facility's sun lamp tanning services unless both of the following apply:
- (a) The tanning facility operator or employee obtains the consent of a parent or legal guardian of the individual prior to each session of the use of the facility's sun lamp tanning services. The consent shall be evidenced by the signature of the parent or legal guardian on the form developed by the board under section 4713.51 of the Revised Code. The form must be signed in the presence of the operator or an employee of the tanning facility.
- (b) A parent or legal guardian of the individual is present at the tanning facility for the duration of each session of the use of the facility's sun lamp tanning services.
- (c) For purposes of division (B) of this section, an electronic signature may be used to provide and may be accepted as a signature evidencing consent.

#### **Rule 4713-19-10 | Tanning equipment posing safety risks.**

A tanning facility shall not use any tanning equipment that is not fully functional or that poses a possible safety risk to a patron. If tanning equipment is broken, does not operate properly, or poses a safety risk, the tanning facility shall not use the tanning equipment until it is repaired. During the time period the tanning equipment is not in service, the tanning facility shall place a sign on it saying that the tanning equipment is out of service.

#### **Rule 4713-19-13 | Termination of tanning services in salons.**

Salons that have a permit to operate a tanning facility, and have closed the tanning facility part of the salon, shall notify the board and physically remove all tanning equipment within ninety days of the closure of the tanning facility.

#### **Rule 4713-19-14 | Training of operators.**

- (A) Each tanning facility shall maintain a board-approved certificate of formal training for each certified operator who works at the facility, and shall produce the certificate(s) upon request.
- (B) In addition to the requirements of paragraph (D) of rule 4713-19-02 of the Administrative Code, each formal training course shall meet the following requirements:
- (1) Each course shall be at least four hours in length. This four hours shall not include items such as registration, lunch, marketing, profit-making strategies, advertising and accounting, taking a test, or similar functions;
- (2) Each course shall include written material which covers the required subjects. The written material shall consist of a core training manual, a copy of Title 21, Code of Federal Regulations, Part 1040, Section 1040.20, April 1, 2012. In classroom courses may include an audio-visual presentation covering the required subjects. The board approved provider.

shall provide copies of all required materials to each individual taking the course and conclude with an examination at a monitored testing site;

- (3) Courses may be provided in person, web-based, or as a correspondence course. However, the individual taking any version of the course shall take and pass an examination at a monitored site. This examination may be administered either web based or as a written examination. An individual shall score a minimum of seventy-five percent in order to receive their certificate of completion. The monitoring process for the examination shall be approved by the board as part of the board's process of approving education courses;
- (4) Each course will be processed through the board's continuing education (CE) process. As set forth in paragraph (H) of rule 4713-21-09 of the Administrative Code, the board may suspend, revoke or deny the approval of a provider of certification's permission to offer certification in Ohio.
- (C) The board shall approve any training course offered by a provider prior to an individual or organization or other legal person offering the course in Ohio. Any individual or organization seeking to obtain board approval shall submit copies of all training materials to be used in the offered training course in Ohio. The materials submitted shall include the credentials of trainers and persons compiling the training materials, a copy of the course curriculum, copies of written materials to be received by trainees, and a course outline indicating the length of time in which any version of a course shall be conducted. The board shall review the materials and inform the applicant of its findings within forty-five days from receipt of all training materials. If it is necessary to make changes to a training course that has been reviewed and approved by the board, those changes shall be submitted to the board for consideration.
- (D) The board shall approve the certificate of completion to be issued to operators who complete and pass the formal training course.

#### **Section 4713.51 | Consent form.**

The state cosmetology and barber board shall develop a form for use by tanning facility operators and employees in complying with the consent requirements of division (B) of section 4713.50 of the Revised Code. The form must describe the potential health effects of radiation from sun lamps, including a description of the possible relationship of the radiation to skin cancer. In developing the form, the board shall consult with the department of health, dermatologists, and tanning facility operators. The board shall make the form available on the internet web site maintained by the board.



# Tanning Risks and Important Information

## Ultraviolet Radiation - Cancer Risk

According to the Centers for Disease Control (CDC), indoor tanning exposes users to UV-A and UV-B radiation and has been linked with skin cancers including melanoma (the deadliest type of skin cancer), squamous cell carcinoma, and basal cell carcinoma, and cancers of the eye (ocular melanoma). Indoor tanning is particularly dangerous for younger users; people who begin indoor tanning during adolescence or early adulthood have a higher risk of getting melanoma.

The product is contraindicated for use on persons under the age of 18 years; the product must not be used if skin lesions or open wounds are present; the product should not be used on people who have had skin cancer or a family history of skin cancer; and people repeatedly exposed to UV radiation should be regularly evaluated for skin cancer. A contraindication means that the product is not indicated for use on persons under the age of 18 years of age.

## According to the American Academy of Dermatology and Ohio Dermatological Association:

The body needs a strong immune system to protect one from developing infections and cancers of all types. Children have immature immune systems, and the damage continues to accumulate across the lifespan. Meaning, the earlier the exposure to tanning radiation and the more exposure that occurs, the earlier the damage that will occur and the worse it will be.

## Avoid Overexposure

Overexposure may cause skin injury, eye injury, and possible allergic reactions. Tanning radiation ages the skin and can result in premature wrinkles and other damage to the skin, such as skin cancer. Repeated overexposure may cause aging of the skin, dryness, has been linked to skin cancer. It is recommended not to tan outdoors on days when you are tanning indoors, or if you currently have a sunburn.

## Ultraviolet Radiation Sensitivity (Photosensitivity: unusual and unexpected increased sensitivity to ultraviolet rays)

The use of various drugs, food items, makeup, lotions, and some sunscreen products contain ingredients that may have a photosensitizing effect with the use of ultraviolet tanning equipment. Customers with any known medical conditions or customers who are currently taking any medications should consult their physician or pharmacist before using ultraviolet tanning equipment.

## Protective Eyewear

Failure to wear protective eyewear can result in severe burns or injury to the eyes, in addition to premature cataracts, glaucoma, macular degeneration and blindness.

## Skin Typing

Skin typing is a required assessment that is used to determine the appropriate tanning exposure schedule for an individual. The types of questions presented on the assessment are about sun sensitivity, natural coloring, recent tanning history, medications, and medical history. Each response is given a numerical value, after the certified operator reviews the questions with the client. The answers are tallied and an individual's sun sensitivity is determined by a score of 1-6. This level of sun sensitivity can then be used when utilizing the manufacturer's printed label for suggested tanning time.

## Certified Operator

A certified operator is an employee of a tanning facility who has successfully completed and passed a board approved training course and holds a board approved certificate. Every tanning facility is required to have a certified operator on duty at all times.

The following must be completed for any person older than the age of 18, who intends to use sun lamp tanning services: This statement must be completed and signed to indicate an understanding of the risks associated with the use of indoor sunlamp products.

☐ Age of individual over 18 years of age was confirmed.

I \_\_\_\_\_ have read and acknowledge the risk factors associated with the use of sunlamp product.  
(Print Name)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

The following must be completed by all parents/legal guardians or consenting adult.

No recent exposure to a sunlamp product in the last 24 hours \_\_\_\_\_  
(Initial)

I \_\_\_\_\_ have read and acknowledge the risk factors associated with the use of sunlamp products.  
(Print Name)

Signature \_\_\_\_\_ Date \_\_\_\_\_

The following must be completed for any person under the age of 18, who intends to use sun lamp tanning services:

I \_\_\_\_\_ being the parent or legal guardian of \_\_\_\_\_  
(Print Name) (Print Name of Minor)



Lists of each US State that has shown interest or taken action in regards to indoor tanning rules/regulations.  
Contact you states office for any questions or concerns regarding rules/regulations.

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**Alabama**

Department of Public Health  
Office of Radiation Control  
P.O Box 201 Monroe Street  
Montgomery, AL 36104  
(334) 206-5391 Phone  
<http://www.adph.org/>

**Arkansas**

Department of Health  
4815 W. Markham St, Slot 30  
Little Rock, AR 72205  
(501) 661-2301 Phone  
<http://www.health.arkansas.gov>

**Connecticut**

Department of Health & Environmental  
Protection Radiation Division  
79 Elm Street  
Hartford, CT 06106  
(860) 424-3029 Phone  
<http://www.ct.gov>

**Georgia**

Governor's Office of Consumer Affairs  
2 Martin Luther King Jr. Dr. Ste 356  
Atlanta, GA, 30334  
(404) 651-8600 Phone  
<http://consumer.georgia.gov>

**Illinois**

Illinois Department of Public Health  
535 West Jefferson St  
Springfield, IL 62761  
(217) 782-4977 Phone  
<http://www.dph.illinois.gov>

**Kansas**

Board of Cosmetology  
714 SW Jackson Ste. 100  
Topeka, KS 66603  
(785) 296-3155 Phone  
<http://www.kansas.gov>

**Maine**

Division of Environmental Health  
11 State House Station  
Augusta, ME 04333  
(207) 287-5697 Phone  
<http://www.maine.gov>

**Michigan**

Community & Health Systems  
P.O. Box 30664  
Lansing, MI 48909  
(517) 335-1980 Phone  
<http://www.michigan.gov>

**Alaska**

Department of Health & Social Services  
State Laboratories  
5455 Dr. Martin Luther King Jr. Ave  
Anchorage, AK 99507  
(907) 334-2107 Phone  
<https://www.alaska.gov/>

**California**

Board of Barbering & Cosmetology  
PO Box 944226  
Sacramento, CA 94244  
1-800-952-5210 Phone  
<http://www.barbercosmo.ca.gov>

**Delaware**

General Health District  
Registrar of Regulating Legislative  
Council Division of Research  
411 Legislative Ave  
Dover, DE 19901  
(302) 744-4114 Phone  
<http://regulations.delaware.gov>

**Hawaii**

Department of Commerce \*  
Consumer Affairs  
P.O. Box 3469  
Honolulu, HI 96801  
(808) 586-2696  
<http://cca.hawaii.gov>

**Indiana**

Professional Licensing Agency, State Board  
of Cosmetology and Barber Examiners  
402 W. Washington St. Room W072  
Indianapolis, IN 46204  
(317) 234-3031 Phone  
<http://www.in.gov>

**Kentucky**

Board of Public Health Cabinet for  
Health Services  
275 E. Main St.  
Frankfort, KY 40621  
(502) 564-1492 Phone  
<http://chfs.ky.gov>

**Maryland**

Department of Health & Mental Hygiene  
201 W.Preston St  
Baltimore, MD 21201  
(410) 767-6500 Phone  
<http://phpa.dhmf.maryland.gov>

**Minnesota**

Minnesota Department of Health  
P.O. Box 64975  
St. Paul, MN 55164  
(888) 345-0823  
<http://www.health.state.mn.us>

**Arizona**

Radiation Regulatory  
4814 S. 40th St.  
Phoenix, AZ 85040  
(602) 255-4845 Phone  
<https://arra.az.gov/>

**Colorado**

Department of Health Division of  
Environmental Health & Sustainability  
4300 Cherry Creek Drive South A  
Denver, CO 80246  
(303)692-3620 Phone  
<https://www.colorado.gov>

**Florida**

Department of Environmental Health  
4052 Bald Cypress Way. Bin A08  
Tallahassee, FL 32399  
(850) 245-4111 Phone  
<http://www.floridahealth.gov>

**Idaho**

Idaho Bureau of Laboratories  
2220 Old Penitentiary Rd  
Boise, ID 83712  
(208)334-4067 Phone  
[labimprovement@dhw.idaho.gov](mailto:labimprovement@dhw.idaho.gov)

**Iowa**

IDPH Regulatory Programs & IDPH  
Regulatory Programs  
321 E 12th St.  
Des Moines, IA 50319  
(515) 281-7689 Phone  
<https://idph.iowa.gov>

**Louisiana**

Department of Health & Hospitals  
Food & Drug Unit  
628 N. 4th St.  
Baton Rouge LA, 70821  
(225) 342-9500 Phone  
<http://dhh.louisiana.gov>

**Massachusetts**

Department of Radiation Control  
Program  
Schrafft Center Ste 1M2A  
529 Main St.  
Charlestown, MA 02129  
(617) 242-3035 Phone  
<http://www.mass.gov>

**Mississippi**

Mississippi State Department of Health  
570 East Woodrow Wilson Dr.  
Jackson, MS 39216  
(866) 458-4948  
<http://msdh.ms.gov>

**Missouri**

Department of Health & Senior Services  
912 Wildwood  
P.O. Box 570  
Jefferson City, MI 65102  
(573) 751-6400 Phone  
<http://www.house.mo.gov>

**Nevada**

Division of Public & Behavioral Health  
2080 E. Flamingo Rd.  
Las Vegas, NV 89119  
(775) 684-4200 Phone  
<http://dphb.nv.gov>

**New Mexico**

Environment Department Health Care Department  
Harold Runnels Building  
1190 St. Francis Dr. Ste N4050  
Sante Fe, MN 87505  
(505) 827-2855 Phone  
<https://www.env.nm.gov>

**North Dakota**

Department of Health Division of Food & Lodging  
600 East Boulevard Ave. Dept. 301  
Bismarck, ND 58505  
(701)328-1890 Phone  
<https://www.ndhealth.gov>

**Oregon**

Oregon Radiation Protection Services  
800 NE Oregon St  
Portland, OR 97232  
(971) 673-1222 Phone  
<https://public.health.oregon.gov>

**South Carolina**

Department of Health & Environmental Control  
2600 Bull Street  
Columbia, SC 29201  
(803)898-3432 Phone  
<http://www.scdhec.gov/>

**Texas**

Department of State Health, Drugs and Medical  
Devices Group  
RLU, Food and Drug Licensing Group MC 2835  
Texas Department of State Health Services  
P.O. Box 14937  
Austin, TX 78714  
(521) 834-6727 Phone  
<http://www.dshs.texas.gov>

**Virginia**

Department of Health Radiological Health  
P.O. Box 2448  
Richmond, VA 23218  
(804) 864-8150 Phone  
<http://www.vdh.virginia.gov>

**Wisconsin**

Department of Safety & Professional Services.  
P.O. Box 2659  
Madison, WI 53701  
(608) 267-4799 Phone  
<https://www.dhs.wisconsin.gov>

**Montana**

Department of Public Health & Human Services  
P.O. Box 202953  
Helean MT, 59620  
(406) 444-2868  
<http://dphhs.mt.gov>

**New Hampshire**

State Board of Barbering Cosmetology & Esthetics  
2 Industrial Park Dr.  
Concord NH 03301  
(603) 271-3608 Phone  
<http://www.oplc.nh.gov>

**New York**

Department of Health Office of Public Affairs  
New York State Department of Health Corning Toer  
Empire State Plaza  
Albany, NY 12237  
<https://www.health.ny.gov>

**Ohio**

Ohio State Board of Cosmetology  
1929 Gateway Cir.  
Grove City, OH 43123  
(614) 466-3834 Phone  
<http://cos.ohio.gov>

**Pennsylvania**

Department of Environmental Protection Bureau of  
Radiation Control  
P.O Box 8469  
Harrisburg, PA 17405  
(717) 783-9730 Phone  
<http://www.health.pa.gov>

**South Dakota**

Department of Health Office of Health  
Protection  
600 E. Capital  
Pierre, SD 57501  
(605) 773-4945 Phone  
<https://doh.sd.gov>

**Utah**

Department of Health Bureau of Edidemiology  
288 North 1460 West  
P.O. Box 142104  
Salt Lake City, UT 84114  
(801) 538-6191 Phone  
<http://health.utah.gov>

**Washington**

State Department of Health Radiation Protection  
P.O. Box 47890  
Olympia, WA 98504  
(800) 525-0127 Phone  
<http://www.doh.wa.gov>

**Wyoming**

2515 Warren Ave Ste 302  
Cheyenne, WY 82002  
(307) 777-3534 Phone  
<http://cosmetology.wy.gov/Index.aspx>

**Nebraska**

Nebraska Department of Health &  
Human Services  
P.O. Box 95026  
Lincoln, NE 68590  
(402) 471-3121 Phone  
<http://dhhs.ne.gov>

**New Jersey**

Department of Health  
P.O Box 360  
Trenton, NJ 08625  
(609) 826-4941 Phone  
<http://www.nj.gov>

**North Carolina**

Department of Health & Human  
Services  
101 Blair Dr.  
Raleigh, NC 27603  
(919)855-4800 Phone  
<http://ncradiation.net>

**Oklahoma**

Department of Environmental Quality  
P.O, Box 1677  
Oklahoma City, OK 73101  
(405) 702-5100 Phone  
<http://www.deq.state.ok.us>

**Rhode Island**

Division of Occupational & Radiological  
Health  
3 Capitol Hill  
Providence, RI 02908  
(401) 222-5960 Phone

**Tennessee**

Division of Consumer Affairs  
500 James Robertson Pkwy #5  
Nashville, TN 37243  
(615) 741-4737 Phone  
<https://tn.gov>

**Vermont**

Department of Health, Agency of  
Human Services  
108 Cherry Street  
Burlington, VT 05402  
(802) 863-7200 Phone  
<http://healthvermont.gov>

**West Virginia**

Department of Health & Human  
Resources  
One Davis Square, Ste 100 East  
Charleston, WV 25301  
(304) 558-0684 Phone  
<http://www.dhhr.wv.gov>

## Chapter 2

## Federal Regulations

### PART 1040 -- PERFORMANCE STANDARDS FOR LIGHT-EMITTING PRODUCTS

Sec. 1040.20 Sunlamp products and ultraviolet lamps intended for use in sunlamp products.

(a) Applicability. (1) The provisions of this section, as amended, are applicable as specified herein to the following products manufactured on or after September 8, 1986.

- (i) Any sunlamp product.
- (ii) Any ultraviolet lamp intended for use in any sunlamp product.
- (2) Sunlamp products and ultraviolet lamps manufactured on or after May 7, 1980, but before September 8, 1986, are subject to the provisions of this section as published in the Federal Register of November 9, 1979 (44 FR 65357).

(b) Definitions. As used in this section the following definitions apply:

- (1) Exposure position means any position, distance, orientation, or location relative to the radiating surfaces of the sunlamp product at which the user is intended to be exposed to ultraviolet radiation from the product, as recommended by the manufacturer.
- (2) Intended means the same as "intended uses" in § 801.4.
- (3) Irradiance means the radiant power incident on a surface at a specified location and orientation relative to the radiating surface divided by the area of the surface, as the area becomes vanishingly small, expressed in units of watts per square centimeter ( $W/cm^2$ ).
- (4) Maximum exposure time means the greatest continuous exposure time interval recommended by the manufacturer of the product.
- (5) Maximum timer interval means the greatest time interval setting on the timer of a product.
- (6) Protective eyewear means any device designed to be worn by users of a product to reduce exposure of the eyes to radiation emitted by the product.
- (7) Spectral irradiance means the irradiance resulting from radiation within a wavelength range divided by the wavelength range as the range becomes vanishingly small, expressed in units of watts per square centimeter per nanometer ( $W/cm^2/nm$ ).
- (8) Spectral transmittance means the spectral irradiance transmitted through protective eyewear divided by the spectral irradiance incident on the protective eyewear.
- (9) Sunlamp product means any electronic product designed to incorporate one or more ultraviolet lamps and intended for irradiation of any part of the living human body, by ultraviolet radiation with wavelengths in air between 200 and 400 nanometers, to induce skin tanning.
- (10) Timer means any device incorporated into a product that terminates radiation emission after a preset time interval.

DANGER ULTRAVIOLET RADIATION					
FOLLOW INSTRUCTIONS. AVOID OVER-EXPOSURE. AS WITH NATURAL SUNLIGHT, OVER-EXPOSURE CAN CAUSE EYE AND SKIN INJURY AND ALLERGIC REACTIONS. REPEATED EXPOSURE MAY CAUSE PREMATURE AGING OF THE SKIN AND SKIN CANCER.					
MAXIMUM TANNING TIME IS 10 MINUTES					
RECOMMENDED EXPOSURE SCHEDULE					
SUN TYPE	WEEK 1 1ST-5TH TREATMENTS	WEEK 2 6TH-10TH TREATMENTS	WEEK 3 11TH-15TH TREATMENTS	WEEK 4 16TH-20TH TREATMENTS	WEEK 5 SUBSEQUENT TREATMENTS
I. SENSITIVE	NOT ADVISED	NOT ADVISED	NOT ADVISED	NOT ADVISED	NOT ADVISED
II. FAIR	2 MIN.	4 MIN.	6 MIN.	8 MIN.	10 MIN.
III. AVERAGE	3 MIN.	6 MIN.	8 MIN.	10 MIN.	12 MIN.
IV. BRONZE	4 MIN.	8 MIN.	10 MIN.	12 MIN.	14 MIN.
V. DARK BRONZE	5 MIN.	10 MIN.	12 MIN.	14 MIN.	16 MIN.
<p><b>WEAR PROTECTIVE EYEWEAR</b></p> <p>Do not use this unit without wearing eye protection. The Federal Food, Drug, and Cosmetic Act (FDCA) and the Federal Radiation Control Act (FRCA) require that this unit be used with eye protection. To ensure the recommended exposure position of a user, please refer to the instructions for use. If you are using this product, please do not use it for more than 10 minutes at a time. If you are using it for more than 10 minutes at a time, you are advised to stop for at least 1 hour before using it again.</p> <p><b>DO NOT USE FOR MORE THAN 10 MINUTES AT A TIME</b></p> <p>Tanning can begin on a regular basis. An exposure of 10 minutes, normally, is recommended. However, if you are using this product for the first time, it is recommended that you start with a shorter exposure time. To avoid skin irritation, do not use this product for more than 10 minutes at a time. If you are using it for more than 10 minutes at a time, you are advised to stop for at least 1 hour before using it again.</p> <p><b>WARNING: The use of any other product may result in over-exposure!</b></p>					

- (11) Ultraviolet lamp means any lamp that produces ultraviolet radiation in the wavelength interval of 200 to 400 nanometers in air and that is intended for use in any sunlamp product.
- (c) Performance requirements - (1) Irradiance ratio limits. For each sunlamp product and ultraviolet lamp, the ratio of the irradiance within the wavelength range of greater than 200 nanometers through 260 nanometers to the irradiance within the wavelength range of greater than 260 nanometers through 320 nanometers may not exceed 0.003 at any distance and direction from the product or lamp.
- (2) Timer system. (i) Each sunlamp product shall incorporate a timer system with multiple timer settings adequate for the recommended exposure time intervals for different exposure positions and expected results of the products as specified in the label required by paragraph (d) of this section.
- (ii) The maximum timer interval(s) may not exceed the manufacturer's recommended maximum exposure time(s) that is indicated on the label required by paragraph (d)(1)(iv) of this section.
- (iii) No timer interval may have an error greater than 10 percent of the maximum timer interval of the product.
- (iv) The timer may not automatically reset and cause radiation emission to resume for a period greater than the unused portion of the timer cycle, when emission from the sunlamp product has been terminated.
- (v) The timer requirements do not preclude a product from allowing a user to reset the timer before the end of the preset time interval.
- (3) Control for termination of radiation emission. Each sunlamp product shall incorporate a control on the product to enable the person being exposed to terminate manually radiation emission from the product at any time without disconnecting the electrical plug or removing the ultraviolet lamp.
- (4) Protective eyewear. (i) Each sunlamp product shall be accompanied by the number of sets of protective eyewear that is equal to the maximum number of persons that the instructions provided under paragraph (e)(1)(ii) of this section recommend to be exposed simultaneously to radiation from such product.
- (ii) The spectral transmittance to the eye of the protective eyewear required by paragraph (c)(4)(i) of this section shall not exceed a value of 0.001 over the wavelength range of greater than 200 nanometers 320 nanometers and a value of 0.01 over the wavelength range of greater than 320 nanometers through 400 nanometers, and shall be sufficient over the wavelength greater than 400 nanometers to enable the user to see clearly enough to reset the timer.
- (5) Compatibility of lamps. An ultraviolet lamp may not be capable of insertion and operation in either the "single-contact medium screw" or the "double-contact medium screw" lampholders described in American National Standard C81.10-1976, Specifications for Electric Lamp Bases and Holders - Screw-Shell Types, which is incorporated by reference. Copies are available from the American National Standards Institute, 1430 Broadway, New York, NY 10018, or available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).
- (d) Label requirements. In addition to the labeling requirements in part 801 and the certification and identification requirements of §§ 1010.2 and 1010.3, each sunlamp product and ultraviolet lamp shall be subject to the labeling requirements prescribed in this paragraph and paragraph (e) of this section.
- (1) Labels for sunlamp products. Each sunlamp product shall have a label(s) which contains:
- (i) A warning statement with the words "**DANGER - Ultraviolet radiation.** Follow instructions. Avoid overexposure. As with natural sunlight, overexposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of the skin and skin cancer. **WEAR PROTECTIVE EYEWEAR; FAILURE TO MAY RESULT IN SEVERE BURNS OR LONG-TERM INJURY TO THE EYES.** Medications or cosmetics may increase your sensitivity to the ultraviolet radiation. Consult physician before using sunlamp if you are using medications or have a history of skin problems or believe yourself especially sensitive to sunlight. If you do not tan in the sun, you are unlikely to tan from the use of this product."

- (i) A warning statement with the words “**DANGER - Ultraviolet radiation.** Follow instructions. Avoid overexposure. As with natural sunlight, overexposure can cause eye and skin injury and allergic reactions. Repeated exposure may cause premature aging of the skin and skin cancer. **WEAR PROTECTIVE EYEWEAR; FAILURE TO MAY RESULT IN SEVERE BURNS OR LONG-TERM INJURY TO THE EYES.** Medications or cosmetics may increase your sensitivity to the ultraviolet radiation. Consult physician before using sunlamp if you are using medications or have a history of skin problems or believe yourself especially sensitive to sunlight. If you do not tan in the sun, you are unlikely to tan from the use of this product.”
- (ii) Recommended exposure position(s). Any exposure position may be expressed either in terms of a distance specified both in meters and in feet (or in inches) or through the use of markings or other means to indicate clearly the recommended exposure position.
- (iii) Directions for achieving the recommended exposure position(s) and a warning that the use of other positions may result in overexposure.
- (iv) A recommended exposure schedule including duration and spacing of sequential exposures and maximum exposure time(s) in minutes.
- (v) A statement of the time it may take before the expected results appear.
- (vi) Designation of the ultraviolet lamp type to be used in the product.

(2) Labels for ultraviolet lamps. Each Ultraviolet lamp shall have a label which contains:

(i) The Words “**Sunlamp - DANDER - Ultraviolet radiation. Follor Instructions.**”

DANGER ULTRAVIOLET RADIATION					
FOLLOW INSTRUCTIONS. AVOID OVEREXPOSURE. AS WITH NATURAL SUNLIGHT, OVEREXPOSURE CAN CAUSE EYE AND SKIN INJURY AND ALLERGIC REACTIONS. REPEATED EXPOSURE MAY CAUSE PREMATURE AGING OF THE SKIN AND SKIN CANCER.					
MAXIMUM TANNING TIME IS 10 MINUTES					
RECOMMENDED EXPOSURE SCHEDULE					
SKIN TYPE	WEEK 1 1ST-5TH TREATMENTS	WEEK 2 6TH-10TH TREATMENTS	WEEK 3 11TH-15TH TREATMENTS	WEEK 4 16TH-20TH TREATMENTS	WEEKLY SUBSEQUENT TREATMENTS
I - SENSITIVE	NOT ADVISED	NOT ADVISED	NOT ADVISED	NOT ADVISED	NOT ADVISED
II - FAIR	2 MIN.	4 MIN.	4 MIN.	4 MIN.	10 MIN.
III - FAIRLY OLE	2 MIN.	4 MIN.	4 MIN.	4 MIN.	10 MIN.
IV - BRONZE	2 MIN.	4 MIN.	4 MIN.	4 MIN.	10 MIN.
V - DARK BRONZE	2 MIN.	4 MIN.	4 MIN.	4 MIN.	10 MIN.

**WEAR PROTECTIVE EYEWEAR.** Failure to wear eye protection may result in severe eye injury. Always wear eye protection when using this product. Failure to wear eye protection may result in severe eye injury. Always wear eye protection when using this product.

**USE PROTECTIVE EYEWEAR.** Failure to wear eye protection may result in severe eye injury. Always wear eye protection when using this product. Failure to wear eye protection may result in severe eye injury. Always wear eye protection when using this product.

**MAXIMUM TANNING TIME IS 10 MINUTES.** Do not exceed the maximum tanning time of 10 minutes per session. Do not exceed the maximum tanning time of 10 minutes per session.

**REPEATED EXPOSURE MAY CAUSE PREMATURE AGING OF THE SKIN AND SKIN CANCER.** Do not use this product more than once in a 24-hour period.

- (3) Label specifications. (i) Any label prescribed in this paragraph for sunlamp products shall be permanently affixed or inscribed on an exterior surface of the product when fully assembled for use so as to be legible and readily accessible to view by the person being exposed immediately before the use of the product.
- (ii) Any label prescribed in this paragraph for ultraviolet lamps shall be permanently affixed or inscribed on the product so as to be legible and readily accessible to view.
- (iii) If the size, configuration, design, or function of the sunlamp product or ultraviolet lamp would preclude compliance with the requirements for any required label or would render the required wording of such label inappropriate or ineffective, or would render the required label unnecessary, the Director, Center for Devices and Radiological Health, on the center's own initiative or upon written application by the manufacturer, may approve alternate means of providing such label(s), alternate wording for such label(s), or deletion, as applicable.
- (iv) In lieu of permanently affixing or inscribing tags or labels on the ultraviolet lamp as required by §§ 1010.2(b) and 1010.3(a), the manufacturer of the ultraviolet lamp may permanently affix or inscribe such required tags or labels on the lamp packaging uniquely associated with the lamp, if the name of the manufacturer and month and year of manufacture are permanently affixed or inscribed on the exterior surface of the ultraviolet lamp so as to be legible and readily accessible to view. The name of the manufacturer and month and year of manufacture affixed or inscribed on the exterior surface of the lamp may be expressed in code or symbols, if the manufacturer has previously supplied the Director, Center for Devices and Radiological Health, with the key to such code or symbols and the location of the coded information or symbols on the ultraviolet lamp. The label or tag affixed or inscribed on the lamp packaging may provide either the month and year of manufacture without abbreviation, or information to allow the date to be readily decoded.
- (v) A label may contain statements or illustrations in addition to those required by this paragraph if the additional statements are not false or misleading in any particular; e.g., if they do not diminish the impact of the required statements; and are not prohibited by this chapter.
- (e) Instructions to be provided to users. Each manufacturer of a sunlamp product and ultraviolet lamp shall provide or cause to be provided to purchasers and, upon request, to others at a cost not to exceed the cost of publication and distribution, adequate instructions for use to avoid or to minimize potential injury to the user, including the following technical and safety information as applicable:



- (1) Sunlamp products. The users' instructions for a sunlamp product shall contain:
- (ii) The model identification.
  - (iii) The words **"Use ONLY in fixture equipped with a timer."**
- (i) A reproduction of the label(s) required in paragraph (d)(1) of this section prominently displayed at the beginning of the instructions.
- (ii) A statement of the maximum number of people who may be exposed to the product at the same time and a warning that only that number of protective eyewear has been provided.
- (iii) Instructions for the proper operation of the product including the function, use, and setting of the timer and other controls, and the use of protective eyewear.
- (iv) Instructions for determining the correct exposure time and schedule for persons according to skin type.
- (v) Instructions for obtaining repairs and recommended replacement components and accessories which are compatible with the product, including compatible protective eyewear, ultraviolet lamps, timers, reflectors, and filters, and which will, if installed or used as instructed, result in continued compliance with the standard.
- (2) Ultraviolet lamps. The users' instructions for an ultraviolet lamp not accompanying a sunlamp product shall contain:
- (i) A reproduction of the label(s) required in paragraphs (d)(1)(i) and (2) of this section, prominently displayed at the beginning of the instructions.
  - (ii) A warning that the instructions accompanying the sunlamp product should always be followed to avoid or to minimize potential injury.
  - (iii) A clear identification by brand and model designation of all lamp models for which replacement lamps are promoted, if applicable.
- (f) Test for determination of compliance. Tests on which certification pursuant to § 1010.2 is based shall account for all errors and statistical uncertainties in the process and, wherever applicable, for changes in radiation emission or degradation in radiation safety with age of the product. Measurements for certification purposes shall be made under those operational conditions, lamp voltage, current, and position as recommended by the manufacturer. For these measurements, the measuring instrument shall be positioned at the recommended exposure position and so oriented as to result in the maximum detection of the radiation by the instrument.

### What is Sunless Tanning (Mayo Clinic)

Sunless tanning is a practical alternative to sunbathing.

### How do sunless tanning products work?

Sunless tanning products, also called self-tanners, can give your skin a tanned look without exposing it to harmful ultraviolet (UV) rays. Sunless tanning products are commonly sold as lotions, creams and sprays you apply to your skin. Professional spray-on tanning also is available.

The active ingredient in most sunless tanning products is the color additive, dihydroxyacetone (DHA). When applied, dihydroxyacetone reacts with dead cells in the skin's surface to temporarily darken the skin and simulate a tan. The coloring typically wears off after a few days.

Most sunless tanning products don't contain sunscreen. If a product contains sunscreen, it will only be effective for a couple of hours. The color produced by the sunless tanning product won't protect your skin from UV rays. If you spend time outdoors, sunscreen remains essential.



### Differences between Spray Tan and Airbrush Tan.

### What is Airbrush Tanning?

Airbrush tanning is one of the easiest and cheapest ways to get a tan. This is the process of using an airbrush (apparently) to spray the solution over your body. It is a very delicate process and is performed by tanning experts.

### Pros of Airbrush Tanning

- The process is administered by a technician. This means it could be altered to suit your tanning needs just by communication and coordination. You can choose to decide how much tanning your specific parts of your body require.
- Any kind of reaction or allergies can quickly be noticed and rectified. It is actually possible and practiced to apply the solution to a small portion of your skin to observe any reactions beforehand.
- The airbrush can be made to reach into areas which will usually be concealed, e.g. under the breasts, inner thighs, etc. The ease-of-access is possible because of hand administration and controlled application.
- Because of frequent use, these airbrushes are regularly cleaned and maintained by beauticians. This means that hygiene is uncompromised for everyone.

## What is Spray Tanning

Spray tanning is the process of applying the tanning solution by with the use of a 'booth' and some nozzles. The booth is a closed enclosure fitted with spray nozzles around strategic corners. The client will be allowed into the booth (naked) and instructed to stand at certain angles. These instructions are pre-programmed and delivered via speakers inside the booth. With fast and calculated spray bursts from the nozzles, the solution will be sprayed all over their body. The quantity of the spray to be administered will be determined by the client's requirement of how strong they want the tan to be

## Pros of Spray Tanning

- The process is fast and more natural than having to lie at the beach and precisely calculate between your requirements and risks.
- The amount of spray and timing is pre-calculated. This means that you don't have to experiment it on yourself first to get a clear picture. You can choose from a catalog of photographs to decide what kind of tan you want.
- The instructions are comfortable, and all you have to do is place yourself at different angles to get the tan successfully.
- The spray nozzles are at suitable angles to evenly spray the solution all over your body. The chances of getting an uneven tan are meager (unless you haven't been following the instructions correctly).

## Difference between Airbrush Tanning & Spray Tanning

Airbrush Tanning	Spray Tanning
<ul style="list-style-type: none"><li>• Involves the application of tanning solution delicately with an airbrush.</li><li>• Requires human administration</li><li>• The process can be calculated to give the desired results.</li><li>• Charges vary depending on the popularity of the beautician.</li><li>• Hygienic process (usually)</li><li>• One time application to last for 4-10 days.</li></ul>	<ul style="list-style-type: none"><li>• Involves stepping into a booth fitted with spray nozzles at certain angles.</li><li>• Machine administered</li><li>• Pre-calculated.</li><li>• Almost the same costs at all service providers.</li><li>• The hygiene of tanning booths can be questioned.</li><li>• Will typically require 3 spray tan sessions to get the perfect tan</li></ul>

## What about sunless tanning pills?

Sunless tanning pills, which typically contain the color additive canthaxanthin, aren't safe. When taken in large amounts, canthaxanthin can turn your skin orange or brown and cause hives, liver damage and impaired vision.

## Is sunless tanning safe?

Topical sunless tanning products are generally considered safe alternatives to sunbathing, as long as they're used as directed. The Food and Drug Administration (FDA) has approved dihydroxyacetone for external application to the skin. However, the FDA states that DHA shouldn't be inhaled or applied to areas covered by mucous membranes, including the lips, nose or areas around the eyes because the risks of doing so are unknown.

If you're using a sunless tanning product at home, follow the directions on the label carefully and don't get the product in your eyes, nose or mouth. If you're going to a sunless tanning (spray tanning) booth, ask how your eyes, lips, nose and ears will be protected and how you will be protected from inhaling the tanning spray. Options for protecting yourself while applying or having a sunless tanning spray applied include wearing goggles, nose plugs or a nose filter and lip balm.

### **What's the best way to apply a sunless tanning lotion?**

Exfoliate first. Before applying a sunless tanning product exfoliate your skin with a washcloth. This will help remove excess dead skin cells. Spend a little extra time exfoliating areas with thick skin, such as your knees, elbows and ankles. Dry your skin.

Apply in sections. Massage the product into your skin in a circular motion. Apply the tanner to your body in sections, such as your arms, legs and torso. Wash your hands with soap and water after each section to avoid discoloring your palms. Lightly extend the product from your ankles to your feet and from your wrists to your hands.

Wipe joint areas. Knees, elbows and ankles tend to absorb more of sunless tanning products. To dilute the tanning effect in these areas, gently rub them with a damp towel.

Take time to dry. Wait at least 10 minutes before getting dressed. Wear loose clothing and try to avoid sweating.

### **What Are Sunscreens?**

Sunscreens are products combining several ingredients that help prevent the sun's ultraviolet (UV) radiation from reaching the skin. Two types of ultraviolet radiation, UVA and UVB, damage the skin, age it prematurely, and increase your risk of skin cancer.

UVB is the chief culprit behind sunburn, while UVA rays, which penetrate the skin more deeply, are associated with wrinkling, leathery skin, sagging, and other light-induced effects of aging (photo aging). Sunscreens vary in their ability to protect against UVA and UVB.

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#### *Who Should use sunscreen?*

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The short answer is everyone! Men, women and children over 6 months of age should use sunscreen every day. This includes people who tan easily and those who don't — remember, your skin is damaged by sun exposure over your lifetime, whether or not you burn.

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#### *Why Should I use sunscreen?*

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Sunscreen reduces your overall UV exposure and lowers your risk of skin cancer and sun damage

### **What Is SPF?**

Most sunscreens with an SPF of 15 or higher do an excellent job of protecting against UVB. SPF or Sun Protection Factor is a measure of a sunscreen's ability to prevent UVB from damaging the skin. Here's how it works: If it takes 20 minutes for your unprotected skin to start turning red, using an SPF 15 sunscreen theoretically prevents reddening 15 times longer about five hours.

Another way to look at it is in terms of percentages: SPF 15 filters out approximately 93 percent of all incoming UVB rays. SPF 30 keeps out 97 percent and SPF 50 keeps out 98 percent. They may seem like negligible differences, but if you are light-sensitive, or have a history of skin cancer, those extra percentages will make a difference. And as you can see, no sunscreen can block all UV rays.

But there are problems with the SPF model: First, no sunscreen, regardless of strength, should be expected to stay effective longer than two hours without reapplication. Second, "reddening" of the skin is a reaction to UVB rays alone and tells you little about what UVA damage you may be getting. Plenty of damage can be done without the red flag of sunburn being raised.

## How Much Sunscreen Should I Use and How Often Should I Put it On?

To ensure that you get the full SPF of a sunscreen, you need to apply 1 oz. – about a shot glass full. Studies show that most people apply only half to a quarter of that amount, which means the actual SPF they have on their body is lower than advertised. During a long day at the beach, one person should use around one half to one quarter of an 8 oz. bottle. Sunscreens should be applied 30 minutes before sun exposure to allow the ingredients to fully bind to the skin. Reapplication of sunscreen is just as important as putting it on in the first place, so reapply the same amount every two hours. Sunscreens should also be reapplied immediately after swimming, toweling off, or sweating a great deal.

### Choosing a sunscreen: What to look for

- **Broad spectrum:** Protects your skin from both UVA and UVB rays.
- **SPF 15:** Ideal for every day, occasional exposure, like walking your dog, or driving to work.
- **SPF 30 or higher:** Necessary for extended outdoor activities, including distance running, hiking, swimming and outdoor sports. SPF 30 is a must if you work outdoors.

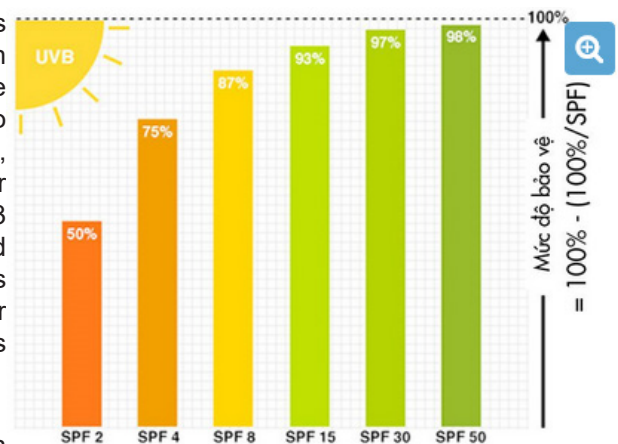
Another way to explain SPF is that it allows 15 more minutes of full protection per number of SPF, above what the body can handle before causing a sun burn.

Example: SPF 1 allows a person who would burn in 20 minutes to be able to stay in the sun for up to 35 minutes (20 + 15min). SPF 2 would allow you to be in the sun for 50 minutes (20+2x15min). SPF 15 would allow you to be in the sun for 3 hours 55 min (20+15x15 min). Higher SPF # does not mean better protection. It is longer protection.

SPF can take up to 30 minutes after application to become effective.

### Sun Protection Factor (SPF) & UV Radiation

Since the advent of modern sunscreens, a sunscreen's efficacy has been measured by its sun protection factor, or SPF. SPF is not an amount of protection per se. Rather, it indicates how long it will take for UVB rays to redden skin when using a sunscreen, compared to how long skin would take to redden without the product. For instance, someone using a sunscreen with an SPF of 15 will take 15 times longer to redden than without the sunscreen. An SPF 15 sunscreen screens 93 percent of the sun's UVB rays; SPF 30 protects against 97 percent; and SPF 50, 98 percent. The Skin Cancer Foundation maintains that SPF's of 15 or higher are necessary for adequate everyday protection. For more extended or intense sun exposure, the foundation recommends SPF's of 30 or higher.



Since both UVA and UVB are harmful, you need protection from both kinds of rays. To make sure you're getting effective UVA as well as UVB coverage, look for a sunscreen with an SPF of 15 or higher, plus some combination of the following UVA-screening ingredients: stabilized avobenzone, ecamsule (a.k.a. Mexoryl™), oxybenzone, titanium dioxide, and zinc oxide. You may see the phrases multi spectrum, broad spectrum or UVA/UVB protection on sunscreen labels, and these all indicate that some UVA protection is provided. However, because there is no consensus on how much protection these terms indicate, such phrases may not be entirely meaningful.

There are currently 17 active ingredients approved by the FDA for use in sunscreens. These filters fall into two broad categories: chemical and physical. Most UV filters are chemical: They form a thin, protective film on the surface of the skin and absorb the UV radiation before it penetrates the skin. The physical sunscreens are insoluble particles that reflect UV away from the skin. Most sunscreens contain a mixture of chemical and physical active ingredients.



**Para-aminobenzic acid (PABA):** One of the first chemical UV filters used in early formulas, this chemical filter protects skin from UVB rays. This UV filter is less common in newer sunscreen formulations because it may be an irritant for those with sensitive skin.

**Avobenzone:** For a chemical UV filter, Avobenzone has the best UVA protection. The EWG (Environmental Working Group) notes it has limited skin penetration and no evidence of hormone disruption.

**Homosalate:** Homosalate has been found in mother's milk and disrupts estrogen, androgen and progesterone. There is also concern that it releases harmful by-products as it breaks down.

**Octisalate:** Usually added to help stabilize Avobenzone, Octisalate is unlikely to cause allergic reactions according to the EWG.

**Octinoxate (also known as Octylmethoxycinnamate):** Octinoxate has been found in mother's milk and mimics hormonal activity, which may cause disruptions.

**Oxybenzone:** Oxybenzone has one of the highest penetration percentages in lab studies (1-9%) and acts like estrogen. It has been associated with endometriosis in women and has high rates of allergic reactions.

FDA-Approved Sunscreens	
Active Ingredient/UV Filter Name	Range Covered
	UVA1: 340-400 nm
	UVA2: 320-340 nm
	UVB: 290-320 nm
Chemical Absorbers:	
Aminobenzoic acid (PABA)	UVB
Avobenzone	UVA1
Cinoxate	UVB
Dioxybenzone	UVB, UVA2
Ecamsule (Mexoryl SX)	UVA2
Ensulizole (Phenylbenzimidazole Sulfonic Acid)	UVB
Homosalate	UVB
Meradimate (Menthyl Anthranilate)	UVA2
Octocrylene	UVB
Octinoxate (Octyl Methoxycinnamate)	UVB
Octisalate ( Octyl Salicylate)	UVB
Oxybenzone	UVB, UVA2
Padimate O	UVB
Sulisobenzene	UVB, UVA2
Trolamine Salicylate	UVB
<b>Physical Filters:</b>	
Titanium Dioxide	UVB, UVA2
Zinc Oxide	UVB,UVA2, UVA1

## Chapter 4

## Moisturizing

### Importance of Moisturizer in Your Skincare Routine

Any skincare routine is not perfect if it does not give importance to moisturizing technique. Irrespective of what type of skin you have, you need to use the most suitable cream or lotion for moisturizing your skin. This will help to keep your skin looking radiant and glowing throughout the day.

### Aloe

Aloe Vera contains something called proteolytic enzymes which repairs dead skin cells on the scalp. It also acts as a great conditioner and leaves your hair all smooth and shiny. It promotes Hair growth, prevents itching on the scalp, reduces dandruff and conditions your hair

### Benefits of aloe vera for skin

1. It soothes sunburn
2. It helps fade dark spots
3. It moisturizes skin
4. It makes a restorative scalp mask
5. It provides healthy aging benefits for skin
6. It soothes psoriasis and eczema



### Bad vs. Good Alcohol in Cosmetic Formulas

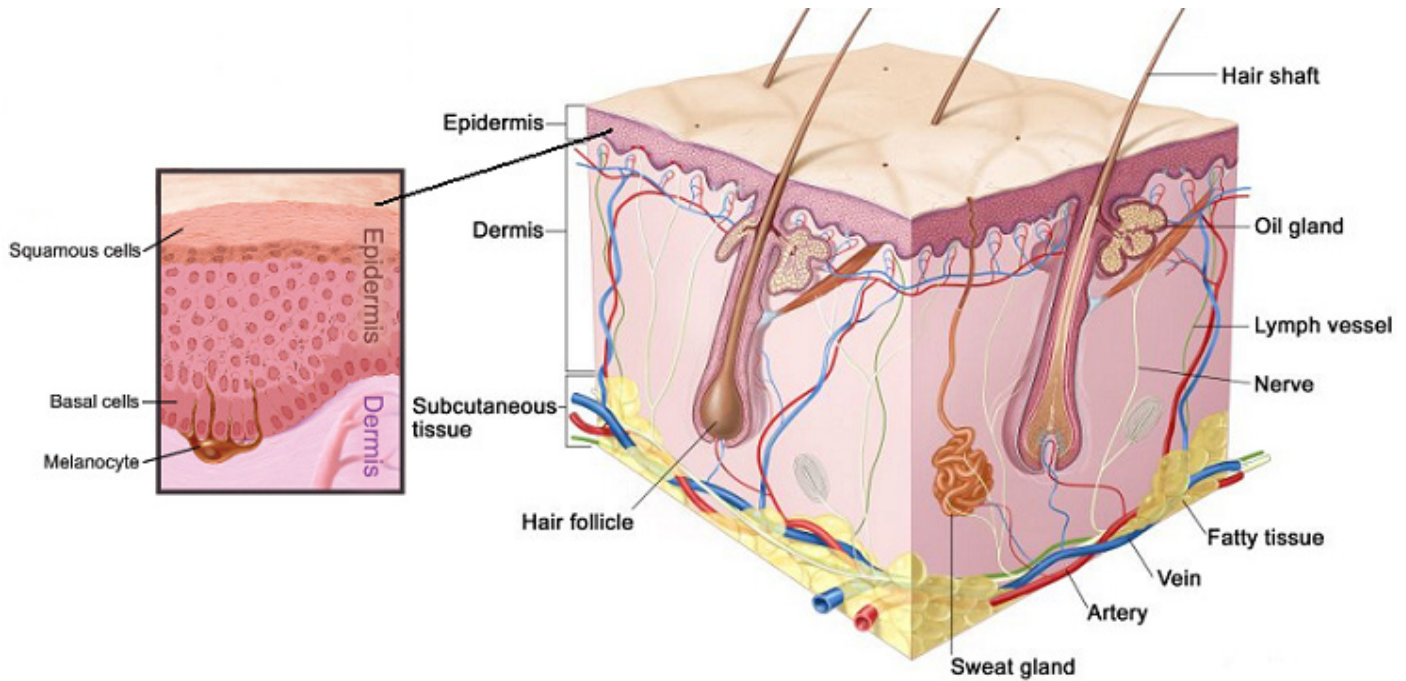
When we express concern about the presence of alcohol in skincare or makeup products, we're referring to a drying type of alcohol that you'll most often see listed on an ingredient label as SD alcohol, denatured alcohol, or, less often, isopropyl alcohol. These types of volatile

Alcohols give products a quick-drying finish, immediately degrease skin, and feel weightless on skin, so it's easy to see their appeal, especially for those with oily skin.

But those short term benefits end up with negative long term consequences.

When you see these names of alcohol listed among the first six ingredients on an ingredient label, without question they will aggravate and be cruel to skin. No way around that, it's simply bad for all skin types. Consequences include dryness, erosion of the surface of skin (that's really bad for skin), and a strain on how skin replenishes, renews, and rejuvenates itself. Alcohol just weakens everything about skin. Just to be 100% clear, there are other types of alcohols, known as fatty alcohols, which are absolutely non-irritating and can be exceptionally beneficial for skin.

	
Good Alcohols	Bad Alcohols
Cetyl Alcohol	Alcohol
Stearyl Alcohol	Ethanol
Glycol	Denatured Alcohol/ Alcohol Denat
C12-16	Methanol
Myristyl Alcohol	SD Alcohol
Cetearyl Alcohol	Isopropyl Alcohol



## Knowing your skin

The skin is the largest organ in your body. It covers the internal organs and protects them from injury, serves as a barrier between microbes such as bacteria and internal organs, and prevents the loss of too much water and other fluids. The skin regulates body temperature and helps rid your body of excess water and salts. Certain cells in your skin communicate with your brain and allow for temperature, touch, and pain sensations. The skin has 3 layers called the epidermis, dermis, and sub cutis. The top layer is the epidermis. The epidermis is very thin, averaging only 0.2 mm (about one hundredth of an inch). It protects the deeper layers of skin and the organs of the body from the environment. The outermost part of the epidermis is called the stratum corneum, or horny layer. It is composed of dead keratinocytes (the main type of cell of the epidermis) that are continually shed. Below the stratum corneum are layers of living keratinocytes, also called squamous cells. These cells form an important protein called keratin. Keratin contributes to the skin's ability to protect the rest of the body.

The basement membrane separates the epidermis from the deeper layers of Skin. Melanocytes are also present in the epidermis. These skin cells produce the protective pigment called melanin. Melanin gives a tan or brown color to the skin and helps protect the deeper layers of the skin from the harmful effects of the sun.

The middle layer of the skin is called the dermis. The dermis is much thicker than the epidermis. It contains hair follicles, sweat glands, blood vessels, and nerves that are held in place by a protein called collagen. Collagen, which is made by skin cells called fibroblasts, gives the skin its resilience and strength.

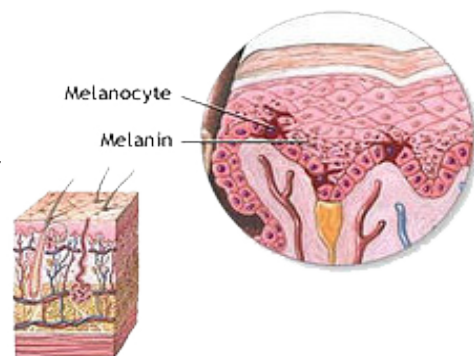
The last and deepest layer of the skin is called the sub cutis. The sub cutis and the lowest part of the dermis form a network of collagen and fat cells. The sub cutis conserves heat and has a shock absorbing effect that helps protect the body's organs from injury.

## Melanocytes:

Another type of cell, melanocytes, is also present in the epidermis. These cells produce the pigment called melanin. Melanin gives the tan or brown color to skin and helps protect the deeper layers of the skin from the harmful effects of the sun.

A layer called the basement membrane separates the epidermis from the deeper layers of skin. The middle layer of the skin is called the dermis. The dermis is much thicker than the epidermis. It contains hair shafts, sweat glands, blood vessels, and nerves.

The last and deepest layer of the skin is called the sub cutis. The sub cutis keeps in heat and has a shock-absorbing effect that helps protect the body's organs from injury.



## Skin Typing

For successful tanning it is necessary to determine the correct typing of your skin. Your operator will consider your skin type when planning your treatment program. Skin type is categorized by the Fitzpatrick skin-type scale which ranges from Type I (fair) to Type VI (black).

The three main factors that influence skin-type are:

1. Genetic disposition
2. Reaction to sun exposure and tanning habits
3. Tanning habits

Skin type is determined genetically and is one of the many aspects of overall appearance. Genetics also determines the eye color, hair color, and the way skin pigments react to light. The way your skin reacts to sun exposure is important in correctly assessing your skin type.

Recent tanning such as sun bathing or artificial tanning such as tanning creams affect the evaluation of your skin color. Please take a few minutes and fill out this questionnaire to help us determine your skin type and treat you properly.

SKIN REACTION EXAMPLES	SKIN TYPE
I Tans a little or not at all, burns easy , then peels	People with fair skin, blue eyes, freckles
II Burns easily and severely, minimal tan, peels	Fair skin, blue or hazel eyes, blonde or red hair
III Burns moderately ; gains average tan	Average caucasian, white
IV Burns minimally, tans easy or above average	Light brown skin, dark brown hair, dark eyes, white or brown skin. (Asians, Hispanics)
V Rarely burns, tans easily	Brown skin (east indians, Hispanics )
V1 Always tans & never burns	Black skin (african american, australian)

### Genetic Disposition

	0	1	2	3	4	Score
What color are your eyes	Lt blue, Gray or Green	Blue, Gray or Green	Blue	Dark Brown	Brownish Black	
What is the natural color of your hair	Sandy Red	Blonde	Chestnut Dark Brown	Dark Brown	Black	
What color is your skin non-exposed	Reddish	Very Pale	Pale with Beige Tint	Light Brown	Dark Brown	
Do you have freckles on your non-exposed skin	Many	Several	Few	Incidental	None	

### Reaction to Sun Exposure

	0	1	2	3	4	Score
What happens when you stay too long in the sun	Painful reddened, blistering, peeling	Blistering followed by peeling	Occasional burns followed by peeling	Rare burns	Never had burns	
To what degree do you burn	Hardly or not at all	Light color tan	Reasonable tan	Tan very easy	Turns dark brown quickly	
Do you turn brown with several hour of sun exposure	Never	Seldom	Sometimes	Often	Always	
How does your face react to the sun	Very sensitive	Sensitive	Normal	Very resistant	Never had a problem	

### Tanning Habits

	1	2	3	4	5	Score
When did you last expose your body to sun, artificial or tanning cream	More than 3 months ago	2-3 Months ago	1-2 Months ago	Less than a month ago	Less than 2 weeks ago	
Did you expose the area to be treated to the sun	Never	Hardly Ever	Sometimes	Often	Always	
Tanning Habits Total						



Add up the total scores of each of the tress sections for your Skin Type Score. This will give you a better evaluation of your skin type.

<b>Summary</b>	
<b>Total for Genetic Disposition</b>	
<b>Total for Reaction to Sun Exoisure</b>	
<b>Total for Tanning Habits</b>	
<b>Skin Type Score</b>	

Your Skin Type Score shows your Fitzpatrick Skin Type

<b>Skin Type Score</b>	<b>Fitzpatrick Skin</b>
<b>0-7</b>	<b>I</b>
<b>8-16</b>	<b>II</b>
<b>17-25</b>	<b>III</b>
<b>25-30</b>	<b>IV</b>
<b>Over 30</b>	<b>V-V1</b>

## Effects on the Skin

### Types of non-melanoma skin cancer

Non-melanoma skin cancers are the most common cancers of the skin. They are called no melanoma because this group of cancers includes all skin cancers except one malignant melanoma. Cancers that develop from melanocytes, the pigment-producing cells of the skin, are called melanoma. Melanocytes can also form benign growths called moles. Melanoma and benign moles are discussed in a separate document called "Melanoma Skin Cancer." There are many types of non-melanoma skin cancers, but two types are most common basal cell carcinoma and squamous cell carcinoma. As of 2010, the estimated new cases and deaths in the United States are: More than 1,000,000 new cases and less than1,000 deaths.

### Basal cell carcinoma

Basal cell carcinoma begins in the lowest layer of the epidermis called the basal cell layer. About 80% of all skin cancers are basal cell carcinomas. They usually develop on sun exposed areas, especially the head and neck. Basal cell carcinoma was once found almost exclusively in middle- aged or older people. Now it is also being seen in younger people, probably because they are spending more time in the sun with inadequate sun protection

Basal cell carcinoma is slow growing. It is highly unusual for a basal cell cancer to spread to lymph nodes or to distant parts of the body. However, if a basal cell cancer is left untreated, it can grow into nearby areas and invade the bone or other tissues beneath the skin. After treatment, basal cell carcinoma can recur (come back) in the same place on the skin.

Also, new basal cell cancers can start elsewhere on the skin. Thirty-five to fifty percent of people diagnosed with one basal cell cancer will develop a new skin cancer within 5 years of the first diagnosis.

### Squamous cell carcinoma

Squamous cell carcinomas develop in higher levels of the epidermis and account for about 20% of all skin cancers. They commonly appear on sun-exposed areas of the body such as the face, ear, neck, lip, and back of the hands. They can also develop within scars or skin ulcers elsewhere. Less often, they form in the skin of the genital area. Squamous cell carcinomas tend to be more aggressive than basal cell cancers. They are more likely to invade tissues beneath the skin, and slightly more likely to spread to lymph nodes and/or distant parts of the body.

## **Less common types of non-melanoma skin cancer**

- Kaposi sarcoma
- Cutaneous lymphoma
- Skin adnexal tumors
- Various types of sarcomas
- Merkel cell carcinoma.

Together, these types account for less than 1% of non-melanoma skin cancers.

### **Lymphocytes:**

Lymphocytes are a type of immune system cell found in the bone marrow (the soft inner part of some bones), lymph nodes (bean-sized collections of lymphocytes and other immune system cells), the bloodstream and some internal organs. The dermis also contains a significant number of lymphocytes. When the lymphocytes become malignant, they form a type of cancer known as lymphoma.

Although most lymphomas start in lymph nodes or internal organs, there are certain types of lymphoma that appear to begin mostly or entirely in the skin. Primary cutaneous lymphoma is the medical term meaning “a lymphoma that started in the skin.” The most common type of primary cutaneous lymphoma is cutaneous T-cell lymphoma, also called mycosis fungoides. Adnexal tumors start in the hair follicles or sweat glands. They are extremely rare tumors that are usually benign, but some malignant forms also occur.

Sarcomas develop from connective tissue cells, usually in tissues deep beneath the skin. Much less often, they may develop in the skin's dermis and subcutis. There are several types of sarcoma that can develop in the skin, including dermatofibrosarcoma protuberans (often abbreviated DFSP) and angiosarcoma (a blood vessel cancer).

### **Merkel cell carcinoma:**

Merkel cell carcinoma is another rare skin cancer that develops from neuroendocrine cells (hormone-producing cells that resemble nerve cells in some ways) in the skin. Unlike basal cell and squamous cell carcinomas, Merkel cell carcinomas often come back after treatment and spread to nearby lymph nodes. They can also spread to internal organs, something that is extremely rare for squamous cell carcinomas and almost unheard of for basal cell carcinomas.

## **Pre-cancerous and preinvasive skin conditions**

### **Actinic keratosis**

Actinic keratosis, also known as solar keratosis, is a pre-cancerous skin condition caused by overexposure to the sun. Actinic keratosis is small (usually less than 1/4 inch) rough spots that may be pink-red or flesh-colored. Usually they develop on the face, ears, back of the hands, and arms of middle-aged or older people with fair skin, although they can arise on other sun-exposed areas of the skin. People with one actinic keratosis will usually develop many more. Actinic keratosis is slow growing. They usually do not cause any symptoms or signs other than patches on the skin. It is possible, but not common, for actinic keratosis to turn into squamous cell cancer. They also frequently go away on their own but may come back. Even though most actinic keratosis does not become cancers, they are a warning that the skin has been damaged by the sun and that you should check your skin regularly. Some actinic keratosis and other skin conditions that could become cancers may have to be removed, while your doctor should regularly check others for changes that could indicate cancer.

### **Squamous cell carcinoma in situ**

Squamous cell carcinoma in situ, also called Bowen's disease, is the earliest form of squamous cell skin cancer. The cells of these cancers are entirely within the epidermis, and have not invaded the dermis. Bowen's disease appears as reddish patches. Compared with actinic keratosis, Bowen's disease patches tend to be larger (often over 1/2 inch), redder, more scaly, and crusted. Like invasive squamous cell skin cancers, the major risk factor is overexposure to the sun. Bowen's disease of the anal and genital skin is often related to sexually transmitted infection with human papillomaviruses (the viruses that can also cause genital warts).

## **Key Statistics for Melanoma Skin Cancer**

Cancer of the skin is by far the most common of all cancers. Melanoma accounts for only about 1% of skin cancers but causes a large majority of skin cancer deaths.

## **Melanoma Stats, Facts, and Figures**

In 2022, an estimated 197,700 cases of melanoma will be diagnosed in the United States. Of those, 97,920 cases will be in situ (noninvasive), confined to the top layer of skin (the epidermis), and 99,780 cases will be invasive, penetrating the epidermis into the skin's second layer (the dermis). Of the invasive cases, 57,180 will be men and 42,600 will be women.

The rates of melanoma have been rising rapidly over the past few decades, but this has varied by age.

## **Risk of getting melanoma**

Melanoma is more than 20 times more common in whites than in African Americans. Overall, the lifetime risk of getting melanoma is about 2.6% (1 in 38) for whites, 0.1% (1 in 1,000) for Blacks, and 0.6% (1 in 167) for Hispanics. The risk for each person can be affected by a number of different factors

Melanoma is more common in men overall, but before age 50 the rates are higher in women than in men.

The risk of melanoma increases as people age. The average age of people when it is diagnosed is 65. But melanoma is not uncommon even among those younger than 30. In fact, it's one of the most common cancers in young adults (especially young women).

## **What are the key statistics for non-melanoma skin cancer?**

Cancer of the skin (including melanoma and non-melanoma skin cancer) is the most common of all cancers, accounting for more than 40% of all cancers. More than 2 million cases of non-melanoma skin cancer are diagnosed in this country each year. The number of people who develop non-melanoma skin cancers each year is not known as accurately as the number that develop most other types of cancer because doctors are not required to report cases of non-melanoma skin cancer to cancer registries. It's thought that 3,000 deaths occur each year from these cancers, but this rate has been dropping in recent years. 2002. The relative 5-year survival rate for patients with basal cell carcinoma is more than 99%. Less than one-tenth of a percent of basal cell carcinomas spread to lymph nodes or distant organs.

However, patients whose basal cell carcinoma has spread to lymph nodes or distant organs have a 5-year survival rate of about 10%. The overall 5-year survival rate for patients with squamous cell carcinoma of the skin is more than 95%. The likelihood of squamous cell skin cancer spreading to lymph nodes depends on the cancer's size and location, but is estimated to occur in a small percentage of cases. The 5-year survival rate for squamous cell carcinoma of the skin that has spread to lymph nodes or distant organs is about 25%. The 5-year survival rate refers to the percent of patients who live at least 5 years after their cancer is diagnosed. Many of these patients live much longer than 5 years after diagnosis, and 5-year rates are used to produce a standard way of discussing prognosis. Five-year relative survival rates exclude from the calculations patients dying of other diseases, and are considered to be a more accurate way to describe the prognosis for patients with a particular type and stage of cancer. Of course, 5-year survival rates are based on patients diagnosed and initially treated more than 5 years ago. Improvements in treatment often result in a more favorable outlook for recently diagnosed patients.

## **UV Radiation & Your Skin**

### **What is UV radiation?**

UV radiation is part of the natural energy produced by the sun. On the electromagnetic spectrum, UV light has shorter wavelengths than visible light, so your eyes can't see UV, but your skin can feel it. Tanning beds also emit UV radiation.

Two types of UV light are proven to contribute to the risk for skin cancer.

- Ultraviolet A (UVA) has a longer wavelength. It is associated with skin aging.
- Ultraviolet B (UVB) has a shorter wavelength. It is associated with skin burning.

While UVA and UVB rays differ in how they affect the skin, they both do harm. Unprotected exposure to UVA and UVB damages the DNA in skin cells, producing genetic defects, or mutations, that can lead to skin cancer and premature aging. UV rays can also cause eye damage, including cataracts and eyelid cancers.

What is at stake?

UV radiation is a proven human carcinogen, causing basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). These types of cancers often appear on sun-exposed areas of skin. Fortunately, when discovered and treated early, these common skin cancers are usually curable.

UV exposure that leads to sunburn has proven to play a strong role in developing melanoma, a dangerous type of skin cancer. Research shows that the UV rays that damage skin can also alter a gene that suppresses tumors, raising the risk of sun-damaged skin cells developing into skin cancer.

### What you need to know

- **A majority of nonmelanoma skin cancers (NMSC)** and a large percentage of melanomas are associated with exposure to UV radiation from the sun.
- **UV exposure is a powerful attack on the skin**, creating damage that can range from premature wrinkles to dangerous skin cancer.
- **Damage from UV exposure is cumulative** and increases your skin cancer risk over time. While your body can repair some of the DNA damage in skin cells, it can't repair all of it. The unrepaired damage builds up over time and triggers mutations that cause skin cells to multiply rapidly. That can lead to malignant tumors.
- **The degree of damage** depends on the intensity of UV rays and the length of time your skin has been exposed without protection. Location is also a factor. The UV index measures the intensity of UV radiation at a specific location. If you live where the sun is strong year-round, your exposure level and risk increases.
- **You can easily reduce** your likelihood of developing skin cancer by protecting yourself against UV radiation.

## Chapter 6

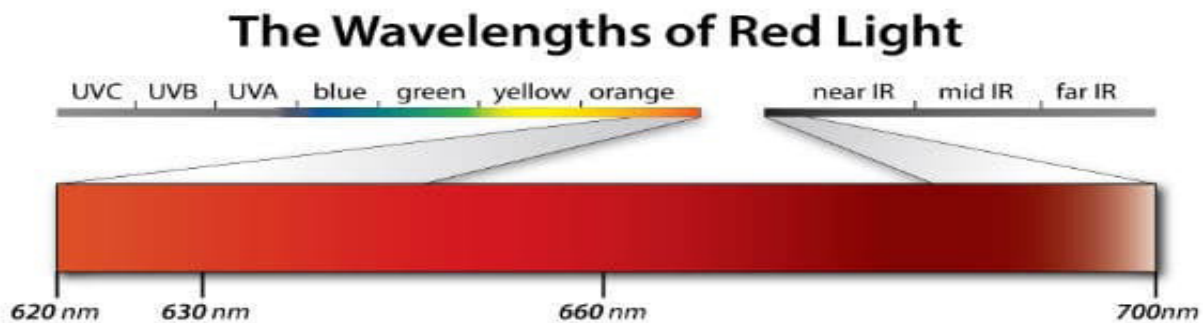
## RedLight

### Red Light Exposure:

Red light is a common name to the scientific term of photobiomodulation. Red light is not Ultraviolet Light (UV). Red light uses wavelengths of light roughly between 620 nm and 700 nm.

Visible red light is capable of penetrating the skin to a depth of approximately 8 to 10mm. Upon absorption, the light energy is converted to cellular energy, stimulating the body's natural cellular activity. Users would benefit from increased circulation and creation of new capillaries.

The technology for LED Light Therapy (or Light Emitting Diode Therapy) was originally created by NASA years ago as a way of growing plants in space. Today, LED Light Therapy is a light treatment that can be used to stimulate collagen production (reducing fine lines and wrinkles) and kill acne-causing bacteria on the skin, improving skin clarity—with no pain and no downtime.



LED Light Therapy works by triggering the body to convert light energy into cell energy—without heat. Red light therapy: Activates collagen production to improve the visible signs of aging, to restore glowing, healthy-looking skin. It can also be used to reduce age spots, sun damage, and overall redness, flushing, and dilated capillaries. Red light therapy can also reduce the appearance of bruising and reduce healing time. Results are often immediate.

The above information and claims are made by a licensed Medical Doctor. Salon operators should not make claims to the validity of the statements above as they are not typically licensed in the medical field with the ability to make such claim

### What are the benefits of red light therapy?

Numerous. Everything from decreased inflammation and pain, to rapid wound healing and increased skin collagen.

#### For a short list see below:

1. Lowered inflammation levels in the body.(1)
2. Help treat problems like osteoarthritis, (joint) injuries, and excessive swelling.
3. Red light therapy can improve hypothyroidism conditions.(2)
4. Increased performance and cellular energy (3)
5. Improved recovery times from training and injury (4,5)
6. Increase testosterone and fertility (6)
7. Improved skin health (7)
8. Firmer skin (8)
9. Improve oral health (9,10)
10. Reverse Hair loss (11)

## Letter to the Indoor Tanning Association on Red Lamps for Skin Rejuvenation Being Installed in Tanning Beds/Booths

December 21, 2011  
Mr. John Overstreet  
President, Indoor Tanning Association, Inc.  
2025 M St., NW, Suite 800  
Washington, DC 20036

Dear Mr. Overstreet,

The Food and Drug Administration (FDA) is aware that some tanning salon owners are removing the original ultraviolet (UV)-emitting tanning lamps from their tanning beds/booths and replacing them with lamps that emit red light. These salon owners are then selling sessions in the red-light units with a range of indications and promotional claims, including ones pertaining to:

- reversal of sun or UV damage to skin,
- wound healing,
- increased blood flow/circulation,
- reduced pain and/or inflammation,
- treatment of acne,
- reduction of appearance of wrinkles, pigmentation spots, stretch marks, and/or scarring,
- skin rejuvenation, restoration, oxygenation, and/or hydration,
- collagen/elastin production/reorganization, and
- skin structure, elasticity, and/or metabolism.

Ultraviolet tanning beds/booths/lamps meet FDA's definition of "device" and "electronic product" at sections 201(h) and 531 of the Federal Food, Drug, and Cosmetic Act (FD&C Act). Tanning lamps are subject to an electronic product performance standard, and are generally 510(k)-exempt. See 21 CFR 878.4635, part 1010 and 1040.20.

**Replacing the original ultraviolet lamps with lamps that emit red light and are intended for uses such as those listed above creates a new type of product that is also a "device" and an "electronic product" under the FD&C Act. Exposure to red light has been scientifically shown and is understood by consumers to affect skin structure, for example by reducing wrinkles for months after treatment, which may be the result of new collagen formation or reorganization, or repair of elastin damage. Claims such as those listed above would cause the product to meet one or both of the "device" definitions at sections 201(h)(2) and (3) of the FD&C Act.**

Red lights intended for uses such as those listed above would not fall under 21 CFR 878.4635, and would not be 510(k)-exempt (they also would not fall under 21 CFR

Red lights intended for uses such as those listed above would not fall under 21 CFR 878.4635, and would not be 510(k)-exempt (they also would not fall under 21 CFR 1040.20, but would be subject to the regulations generally applicable to electronic products at parts 1000 - 1005). **Unless and until such device receives 510(k) clearance or premarket approval from FDA, it would be an adulterated and misbranded device that may not be marketed for sale.** Red light therapy systems intended for uses such as those described above may fall under 21 CFR 878.4810, 878.5400, or 890.5500, depending on the technology and the claims made. For devices that fall within one of these classification regulations, the proper application to file is the 510(k) or "Premarket Notification."

FDA requests the Indoor Tanning Association's assistance in getting this message out to its members. FDA is also communicating this message to state radiation control programs. Some states have expressed concern about this practice to FDA and have already taken action on their own.

Some useful links to the FDA website relevant to this issue are shown below:

The instructions on how to submit a Premarket Notification application can be found at Device Advice: Premarket Notification (510k).

The sunlamp regulations and other resources can be found at Sunlamps and Sunlamp Products (Tanning Beds/Booths): Laws, Regulations & Standards.

### Contacting FDA

Questions about the requirements for clearance of red light devices may be directed to Richard Felten in the Office of Device Evaluation, CDRH, 10903 New Hampshire Avenue, WO-66, Silver Spring, Maryland 20993 or by email at Richard.Felten@fda.hhs.gov. Questions about FDA radiation control requirements for electronic products may be directed to Sharon Miller in the Magnetic Resonance and Electronic Products Branch, Office of In Vitro Diagnostics and Radiological Health, CDRH, 10903 New Hampshire Avenue, WO-66, Silver Spring, Maryland 20993 or by email at SharonA.Miller@fda.hhs.gov.

Sincerely yours, Steven D. Silverman Director  
Office of Compliance  
Center for Devices and Radiological Health



**The following information provided about Red Light is for informational and education purposes only. *Only medical professionals* can make claims to the benefits of Red Light. Please consult with legal and medical professionals before marketing the benefits of Red Light.**

## **Red Light Therapy**

Red light therapy (RLT) is an emerging treatment that's showing promise in treating wrinkles, redness, acne, scars and other signs of aging. Many researchers say more clinical trials are needed to confirm its effectiveness as a treatment. If you're interested in red light therapy, ask your healthcare provider if this is an option for your skin issue.

### **What is red light therapy?**

Red light therapy (RLT) is a treatment that uses low wavelength red light to reportedly improve your skin's appearance, such as reducing wrinkles, scars, redness and acne. It's also touted to treat other medical conditions.

To date, there's a lot of ongoing research, publication of small studies and a much discussion on the internet about the effectiveness of red light therapy for all types of health uses. Results of some studies do show some promise, but the full effectiveness of red light therapy has yet to be determined.

Other names you might hear to describe red light therapy include:

- Low-level laser light therapy.
- Low-power laser therapy.
- Non-thermal LED light.
- Soft laser therapy.
- Cold laser therapy.
- Biostimulation, photonic stimulation.
- Photobiomodulation and phototherapy.

### **How did interest in red light therapy evolve?**

NASA originally began experimenting with red light therapy on plant growth in space and then to help heal wounds in astronauts. Like many developments, other potential uses began to be investigated.

In fact, red light therapy is already widely medically accepted in its use in photodynamic therapy. In this therapy, low-power red laser light is used to activate a photosensitizer drug. The interaction creates a chemical reaction that destroys cells. It's used to treat some skin conditions, including skin cancer and psoriasis, acne and warts and other types of cancer.

Now, RLT is being investigated (or already in use) for treating a wide array of health conditions. What's confusing — and controversial — is the effectiveness of the treatment for the purposes it's being promoted.

### **How does red light therapy supposedly work?**

Red light therapy is thought to work by acting on the "power plant" in your body's cells called mitochondria. With more energy, other cells can do their work more efficiently, such as repairing skin, boosting new cell growth and enhancing skin rejuvenation. More specifically, certain cells absorb light wavelengths and are stimulated to work.

### **Red light therapy may work in skin health to:**

- Stimulate collagen production, which gives skin its structure, strength and elasticity.
- Increase fibroblast production, which makes collagen. Collagen is a component of connective tissue that builds skin.
- Increase blood circulation to the tissue.
- Reduce inflammation in cells.

### **For what skin conditions is red light therapy being tried?**

Red light therapy is promoted as a treatment for some common skin conditions, including to:

- Improve wound healing.
- Reduce stretch marks
- Reduce wrinkles, fine lines and age spots.
- Improve facial texture.
- Improve psoriasis, rosacea and eczema.
- Improve scars.
- Improve sun-damaged skin.
- Improve hair growth in people with androgenic alopecia.
- Improve acne.

## **Is red light therapy effective?**

Most experts say that they don't know yet if RLT is effective for all its claimed uses. Most say that the studies published so far show some potential for certain conditions, but that more studies need to be conducted. Red light therapy is still an emerging treatment that's generating growing interest. But at this point in time, there's not enough evidence to support most uses.

The gold standard of studies to determine if a product is effective is a randomized, placebo-controlled trial. This means that a certain number of people with the same range of characteristics (age, weight, race, gender, etc.) get either the study treatment or a placebo (fake or "sham" treatment) for treatment of the same condition. Some studies also include a comparison to another commonly used treatment. Results can then be compared between the emerging treatment versus no treatment (the placebo group) or versus a "current standard" treatment.

Many of the published studies using RLT included only a small number of people, didn't include a placebo group, weren't conducted in humans (animal studies) or were limited to cell tissue itself. Most researchers say results so far look promising, but that more quality studies with larger numbers of people are needed.

## **Is red light therapy safe?**

Red light therapy appears to be safe and is not associated with any side effects, at least if used short-term and as directed. This therapy is not toxic, not invasive and not as harsh as some topical skin treatments. Unlike the cancer-causing ultraviolet (UV) light from the sun or tanning booths, RLT doesn't use this type of light.

However, if products are misused — perhaps used too often or not according to directions — there's a chance your skin or eyes (if not protected) could be damaged. The long-term safety of devices that use red light therapy is not yet known. Your safest option is to see a dermatologist or qualified, trained, cosmetic therapist. A dermatologist can make sure your skin condition is what you think it is and can discuss the merits of red light therapy and other treatment options. Are devices purchased for at-home use a safe, reasonable option?

You'll find many red light therapy products if you search on the internet. While these products are generally safe to use, they may use a lower wavelength frequency (meaning they're less powerful) than devices that may be used by dermatologists or other trained skin professionals. You may not get the results you hope for.

If you do choose to purchase a red light therapy device, make sure to shield your eyes for protection, follow all directions and take good care of the device.

In addition to medical office-based use and at-home use with a purchased device, you may see RLT being promoted at beauty spas and salons, saunas, tanning salons, gyms and wellness centers. Be cautious of who is supplying and where you are receiving treatment. It's always best to check in with a medical professional about the best options to treat your skin condition or issue.

## **A note from Cleveland Clinic**

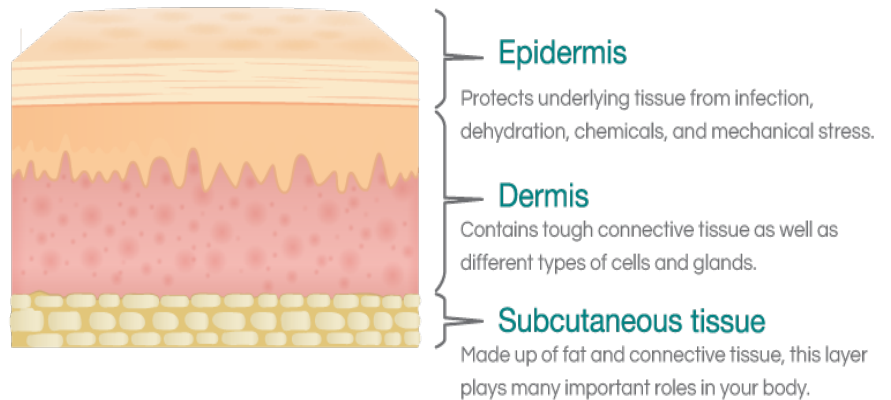
Red light therapy is being promoted as a treatment for some common skin conditions. It's still an emerging therapy but holds a lot of promise. If you're interested in RLT treatment, it's best to first discuss this with your healthcare provider or dermatologist. Your skin professional will examine your skin first and then confirm a diagnosis. Then, you'll work together to discuss treatment options that'll achieve your desired result. Options may or may not include red light therapy. Never hesitate to ask your healthcare provider about treatment options — including if you have an interest in a particular therapy, if it's appropriate to use for your skin condition and if it's safe and effective.

The skin is made up of two basic sections, the outer layer (epidermis) and the inner layer (dermis). Tanning is a process that occurs in the outer section of skin, or in the epidermis.

The epidermis, or outer layer, is actually made up of a series of layers. Cells are created in the bottom layer and rise through the middle layers as they age, moving to the outer layer within about a month as they reach the surface of the skin and die. This surface layer forms a tough protective covering, known as the horny layer.

This outer layer is made up mostly of protein keratin, or keratinocytes, but it is the melanocytes, which make up only 5% of the epidermis, that produces melanin, or pigment. Melanin causes the skin to darken when exposed to ultraviolet light.

### Layers Of The Skin



Everyone has roughly the same number of melanocytes but the amount of melanin produced by those cells will vary and it is the melanin that will determine the skin's ability to tan. When exposed to ultraviolet light, the melanin darkens and rises to the surface to tan the skin.

Tanning is the skin's way of protecting itself from more damaging UV rays. How dark a tan will become depends on the amount of pigmentation (melanin) already present in the skin and the skin's ability to produce more melanin as the skin cells naturally rise to the surface and die.

The first phase of tanning can be immediate in some people – and can fade almost immediately, too. This phase is known as Immediate Pigment Darkening (IPD).

The second phase, or delayed tanning, is a more long lasting tan and is brought on by repeated exposure to ultraviolet light. Known as Persistent Pigment Darkening (PPD), delayed tanning can be UVB induced or UVA induced. UVB tanning can be seen after 24 hours and becomes obvious in 3-5 days. UVA induced tanning can be seen within 36 to 48 hours.

These terms, IPD and PPD, as well as the time they take to become obvious, are important factors in determining appropriate intervals between exposures. As a Certified Tanning Professional, you will be responsible for maintaining accurate records of exposure as well as ensuring enough time has elapsed between tanning sessions.

### What is Tanning Lotion?

Tanning “lotion” is a broad term for products used to enhance the tanning process and increase melanin production in the skin. Consistencies vary from lotions, creams, and mousse, to gels, oils, and sprays. Using a tanning lotion is an essential element to achieving the deepest, darkest, longest lasting tan possible. They also contain the necessary ingredients to keep your skin hydrated and looking healthy. There are three types of tanning; indoor, outdoor and sunless. Each of these three types has products that are exclusive to that kind of tanning. The main two things to take into consideration before picking your product is which form of tanning you plan on doing and your skin type.

### Outdoor Tanning Lotions

When choosing to tan outdoors, it is recommended that you use a tanning product that contains sunscreen. We all know the relation between overexposure to the sun and skin cancer. Sunscreen not only helps block dangerous, cancer-causing UV rays but also with preventing sunburns and premature aging.

Tanners should consider where they are going to tan, skin type, personal skin tone, and the desired level. This will help you in determining the SPF level, moisturizers, and additives; such as bronzers or accelerators, needed specifically for you. You should choose between fair, olive/medium, or dark.

### Indoor Tanning Lotions

Indoor tanning lotions are intended for use with tanning beds or tanning lamps. These products rarely contain sunscreen and are only meant to block artificial UV rays, not natural ones from the sunlight. These should not be used to prevent sunburn. Indoor lotions are specially formulated with ingredients that will not damage the tanning bed like some outdoor lotions have been proven to do. You will find a variety of options when shopping for indoor lotions. The following list will help you decide which products are best for you:

**Basic Tanning Accelerators.** Perfect for beginners needing to establish that base tan. These products will help you achieve a nice, even color. You will want to pick a lotion that hydrates, smooths, and softens skin while darkening. These accelerators allow your body time to adjust to the tanning process before you move to the next level.

**Bronzers.** These are by far the most popular type of lotions on the market. These really bring that deep, natural looking pigment out in the skin. There are three main types of bronzers: instant bronzers that will wash away, natural bronzers that use ingredients to increase your melanin production, and DHA bronzers which work with the amino acids in your skin essentially staining your skin.

Some customer's worry that using a bronzer will turn your orange. While this was a legitimate concern when they first came out, the industry has perfected this product to where this is no longer a concern when using a reputable brand. Modern products leave you with healthy, radiating skin. Another concern is streaking and staining. You want to make sure you apply the cream evenly, using care on hands, feet, knees and elbows. Hands should be thoroughly washed after application and before tanning.

**Tingling Tanning Lotions.** These are generally used by advanced tanners. These can be too harsh for beginners or anyone with sensitive skin. It is highly recommended to do a patch test before purchasing. Tingle products maximize the skin's microcirculation and oxygenation process, the reaction produces deep, dark tanning results. You can use in conjunction with a bronzer for a beautiful tan in a short period

As the name suggests, you will experience tingling and redness of the skin anywhere this product is applied. Some customers are unable to tolerate the burning and itching side effects. This can sometimes last for several hours, so plan accordingly. Hands should be thoroughly washed after application, and extreme caution should be used near the face.

**After Tan Moisturizers.** Helps replace the vital nutrients lost in the tanning process. This will help avoid the dryness and itchiness you may experience afterward. Many people use lotions before entering the beds, not realizing the secret to a longer lasting tan is daily hydration. Without this step, you will end up with a dry layer of skin covering your beautiful tan, blocking the natural glow.

**Facial Tanners.** Designed specifically for the delicate flesh of the face. Many do not realize that normal lotions are not meant to be used on the facial and neck areas. If you do not wish to purchase a separate facial tanner, a good SPF will also work fine. Just make sure you are applying some type of protectant to your face to avoid signs of premature aging.

## **Downside of Using Tanning Lotions**

Everyone is unique, causing individual responses to different products. Sometimes the best thing you can do is pick a product that addresses your needs, then simply find the one you like most through trial and error.

Like with all things, there will be pros and cons.

When choosing to sunbathe, there is no product that will completely block all ultraviolet rays. Even though you may choose a brand with a really good SPF, you are still exposing yourself to some degree of sun damage. Also, the time of day and amount of time you are in the sun can dictate how well your lotion works. If you spend several hours exposed to the sun, you are extremely likely to suffer from sunburn, regardless of the type of product you use. The optimal time to get a tan is from 11 a.m. until 3 p.m.; if you go out too early or too late, you may not achieve the results you are hoping for. If you are looking for a quick tan, using the sun and outdoor lotions would not be your best option. It takes weeks of sunning and using the proper products to build a good even tan.

There are some definite downfalls to using indoor creams. First, they may or may not contain a sunblock. This can be scary because it has been suggested that the indoor items could enhance UV rays, rather than blocking them. The FDA does not recommend indoor tanning in any shape or form due to the risk of cancer. Once sun damage has occurred, it is virtually impossible to reverse it. It

## **What's In Your Tanning Lotion?**

**Hemp Seed Oil:** Its nourishing and moisturizing properties make it a popular ingredient.

**Body Blush:** A type of product made for those who want a tingling effect but have sensitive skin.

**Anti-Aging:** These lotions contain added vitamins that help protect against premature signs of aging.

**Shimmer:** Glimmering additives in these projects have reflective properties that give your skin an added glow.

**Caffeine:** Caffeine is often added to reduce puffiness and energize your skin. Caffeine will absorb into the body, so if you are sensitive to caffeine or have eliminated it from your diet, steer clear of these lotions.

**Silicon:** Silicon is a mineral with moisturizing benefits. It's used to help condition your skin.

**Beta Carotene:** Also called vitamin A. It enhances pigment coloration in your skin. Vitamin E makes skin softer and reduces the appearance of lines and wrinkles.

**Vitamin E** - Softens skin and reduces fine lines

## Chapter 9

## Tanning Bed Lamps

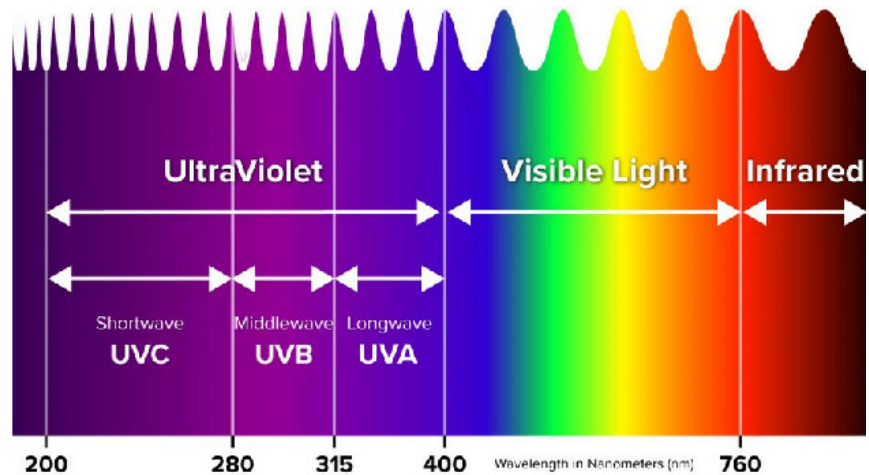
### Indoor Tanning Lamps

There are various ultraviolet energy sources:

(1) Mercury vapor high-pressure lamps that are used in some tanning equipment and table to models, which emit a relatively small amount of UVB.

(2) Metal halide lamps that work similar to mercury vapor high-pressure lamps; However, much of the extreme output is absorbed by the metal additives and fluoresces in various wave lengths. This produces a more continuous light spectrum with adequate UVA emission.

(3) Fluorescent lamps which are similar to metal halide lamps in terms of having continuous energy distribution but exceed metal halide lamps in terms of continuity. Fluorescent lamps also differ in the sense that they can run on a low pressure discharge of mercury and emit rays of wavelength this in the UVA and UVB range.



### How Lamps work

Low-pressure tanning lamps are manufactured similarly to general lighting fluorescent lamps. The principal components are phosphors, electrodes, inert gas and mercury. When a tanning lamp is ignited, an electric current passes through the electrodes, which causes them to heat and release electrons. These electrons travel at high speed, dispensing an electric discharge through the mercury vapor. The lamp is quickly heated, increasing the vapor pressure of mercury to its most effective value. At that point, the electrons energize the phosphor coating in the lamp.

The phosphor coating is the most important element of a tanning lamp and determines the performance level. The phosphor controls the emission of UVA and UVB, the quality of the tan, and the life of the lamp. Naturally, better phosphors produce a better tan. Through skillful phosphor blending and manufacturing methods, virtually every light spectrum can be created — From UVB up to the end of the visible light sector.

### Lamp Compatibility Disclaimer

The customer is responsible for insuring that all lamps are the correct size, correct number needed, and wattage and are compatible for their tanning and the state in which they are located. It is solely the salon owner's responsibility to insure you are ordering lamps that are legally compatible for your tanning bed, and we are not responsible in any way if you choose lamps that are not legal for use in your state. In regards to F.D.A. compatibility, please give us a call and we can determine which tanning lamp is the correct choice.

**SEE EXAMPLE OF LAMP COMPATIBILITY ON NEXT PAGE**





Golden Bronze	F59, 80W	GB-T12-59-80W	Accelerator, Cosmolux GSP 9K90, Bellarium Plus, Dr Kern Excellent E20 100W, Bellarium S, Eternal Sun Gold, Body Scan X, Goldarium S, Body Scan X Plus, Goldarium SP, Crystal Sun S, Sunfit Professional X, Diamond Sun S, Sunfit Professional Max, Eternal Sun, VIP Gold/Ho 2.6, Eternal Sun EX, Your Light 1.7 Se/HP, Eurosun S3, Eurosun Plus S3, Everglo, Everglo Plus, Nuvalarium, Velocity, Velocity Plus, XS Bronzing Power
Golden Bronze	F71, F73 100/120W	GB F71 100/120W GB F73 100/120W	BodyScan X, Cosmolux GSP 9K90 Body Scan X Plus, Dr Kern Excellent E20 100W, Bronzing Sun HPK90 100W, Eternal Sun Gold, Dark Tan Elite, Genesis 105w, Eternal Sun Ex, Genesis 105w Plus, Everglo, Elite Select, ETS Elite Select, Genesis 120W, Everglo Plus, Goldarium S, Perfect Sun Plus, Goldarium SP, Speed 175, Poretan S+, Speed 205, Sunfit Professional Max, Speed 215, Sunfit Professional X, Velocity, VIP Gold Ho/Se, Velocity Extreme, VIP Gold/Ho 2.6, Velocity Plus, Your Light 1.7 Se/HP, Velocity Select, Xs Bronzing Power
Golden Bronze Plus	F71 100W	GBP F71 100/120W	Speed 205, Speed 215, Brilliance 5.0 100W, Elite Plus, Philips Cleo Swift TL100W, Velocity Extreme, Mega Voltage, Velocity Plus, Mega Voltage Plus, Velocity Select Plus, Real Sun F71/XX 100W
Golden Bronze II	F71, F73	GB II F71 100/120W GB II F73 100/120W	Dark Tan, Beach Sun 6.5, Dark Tan II, Dual Sun, Dark Tan Plus, Dynamo Plus, Dark Tan II Plus, Instantan 5.0, Perfect Sun Extreme, Instantan 7.9, Perfect Sun Max, Mega Sun 8.5, X Power, Midday Sun 5.0, Xs Power, Navigator, X-Power Plus, Radiance 7000, Xs-Power Plus, Sundance 8.5, VIP Gold Ho/Se
GoldenBronze Maximum	F71, F73 100/120W	GBM F71 100/120W GBM F73 100/120W	Bronzing Sun, Cosmedico Hi Tan, Bronzing Sun Plus, Desert Sun, Bronzing Sun Ultra, Equator Sun, Hollywood Tans HT42, Genesis GS 120W, Solar Rayz, Instantan 6.9, Sun Fusion, Instantan 8.9, Interlectric Supersun Panther, Philips Advantage Max 100W

## High Pressure Bulbs

Typical high-pressure bulb. Note the small specks, which are mercury droplets. This is the more common 400W “clip in” or ceramic style.

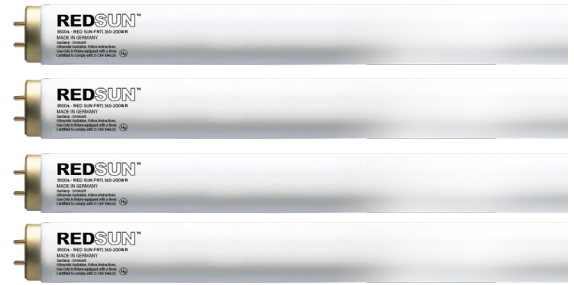
High-pressure bulbs are 3 to 5 inches long and typically powered by a ballast with 250 to 2,000 watts. The most common is the 400 watt variety that is used as an added face tanner in the traditional tanning bed. High-pressure lamps use quartz glass, and as such do not filter UVC. Because UVC can be deadly, a special dichroic filter glass (usually purple) is required that will filter out the UVC and UVB. The goal with high-pressure tanning bulbs is to produce a high amount of UVA only. Unfiltered light from a high-pressure lamp is rich in UVC used in germicidal lamps, for water purification, but it damages human skin.



The contents of a high-pressure lamp are inert gas (such as argon) and mercury.[2] There are no phosphors used, and the mercury is clearly visible if it is not in a gaseous state. During installation, even a small amount of oil from fingertips can cause the quartz envelope to fail in operation. Most commercial replacement bulbs come with a special pocket wipe, usually containing alcohol, to clean the bulb in case it is accidentally touched during installation. Because the bulb contains mercury, great care should be used if a bulb is broken, to prevent accidental contact or vapor exposure.

## Low-pressure lamps

Like all fluorescent lamps, low-pressure tanning lamps have a ballast to start the lamps and limit the flow of current. The plasma of excited mercury atoms inside the lamp emits ultraviolet light directly. The lamps are coated on the inside with special phosphors. Unlike high-pressure lamps, the glass that is used in low-pressure lamps filters out all UVC. Once the plasma is fully formed, the plasma strips away the outer electrons from the mercury; when these electrons return to a lower energy level, visible and ultraviolet light is emitted. Some of the short-wave ultraviolet excites the phosphors, which then emits photons in the proper spectrum for tanning.



## Low-pressure lamp sizes and powers

Tanning lamps come in several configurations which are considered standards within the industry, including:

- F59 and F60 - 80 watt lamps (shorter lamps to go in front of face tanning “buckets”)
- F71, F72, F73, F74 - Typically 100 W, although some F74 are 120 W.
- F71 - 160 W versions of the F71 for use in more expensive salon equipment, but a special ballast is required.
- F71 - 200 W versions of the F71 for use in more expensive salon equipment, but a special ballast is required.
- F59 - 140 W versions, shorter versions of the above lamp
- F79, 2M - 200 W (2 meters) used only in very expensive tanning booths and beds.

The power listing for lamps is not absolute, as you can drive a lamp with less power than listed if you use certain solid state ballasts. You can also use a 160 W lamp with a 100 W ballast, although there are no advantages to this. Using a 100 W lamp with a 160 W ballast, however, can lead to quick failure as the cathode/anode of some 100 W lamps cannot take the extra power. The lamps will operate at any frequency (50 Hz to 120,000 Hz or higher). However, the ballasts and other electrical systems on the tanning bed are sensitive to frequency.

## Lamp types

In addition to standard lamps, there are also lamps with reflectors built inside. This is accomplished by taking the raw glass before any phosphor is used and pouring a white, opaque, highly reflective chemical on the inside of the lamp. This is done only on a certain percentage of the lamp, such as 210 degrees or 180 degrees, so that the remaining lamp is NOT coated. After this coating has dried or has been treated to ensure it will stick to the surface of the glass (using heat, for example) the lamp is coated on the inside with the phosphor blend as usual. Anywhere from 3 to 5 different chemicals are typically used in a blend, with the actual proportions and chemicals closely guarded as trade secrets.

The 100 watt version of a reflector lamp is typically called a RUVA (Reflector UVA) or less commonly HO-R (High Output - Reflector). The 160 watt version are called VHO-R (Very High Output - Reflector). The name “VHR” describe 160 W reflector lamps and is a registered trademark of Cosmedico, Ltd. There are many other variations of low-pressure tanning lamps including 26 watt, 80 watt, and 200 watt to name a few.

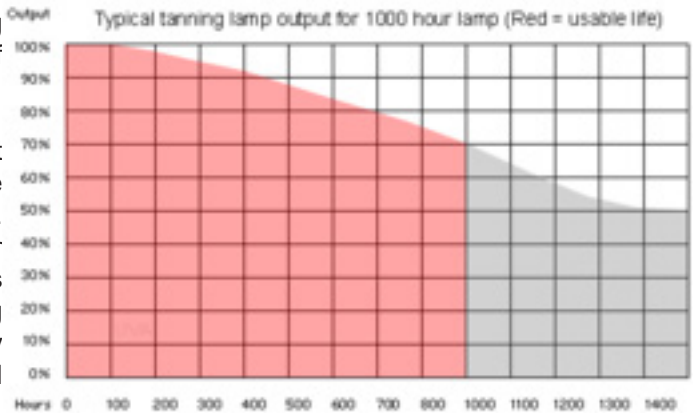
## Lamp life

Like all fluorescent lamps, the low-pressure lamps will burn for a long period of time. They will, however, lose their ability to produce a reasonable amount of UV after a short while. Typical lifespans for low-pressure lamps are from 500 to 1,000 hours of actual use.

## Lamp maintenance and replacement

Typical output curve of a 1,000-hour-rated low-pressure tanning lamp. At 1,000 hours, the output becomes less than 70% of rated power.

Tanning lamps are virtually maintenance free, but must be kept clean, as UV can easily be blocked by dust drawn in from the cooling system (or from improperly cleaned acrylics shields). Most manufacturers recommend wiping the lamps and other internals clean every 200 to 300 hours of operation. Most salons will replace their tanning lamps once per year, while home tanning bed owners can expect 3 to 5 years of use. This depends solely on the number of hours the lamps have been used and the rated life of the lamp, which varies from model to model.



High-pressure lamps must be handled very carefully, as any oil from the skin that is left on the bulb can cause the bulb to overheat and lead to early failure. The filter glass must also be handled carefully as it is extremely fragile by its nature. These should only be cleaned with special chemicals designed for this purpose. Operating any tanning equipment that uses high-pressure bulbs without the special filter glass is extremely dangerous, and illegal in a salon, due to the high amount of UVC generated in the bulbs.

The amount of UV that is generated from a low-pressure lamp is highly dependent on the temperature in the tanning unit. As a rule, tanning lamps produce the highest amount of ultraviolet light when this temperature is between 90 and 110 °F (32 and 43 °C). As the temperature moves away from this range, the amount of UV produced is reduced. Cooling systems for tanning equipment are usually designed to maintain a range of temperature instead of providing maximum airflow for this reason. Higher temperatures will also reduce the expected life of the tanning lamp. This is why it is important to perform regular maintenance, including checking cooling fans and insuring that vent holes are not blocked. The owner's manual for the tanning equipment is the best source for maintenance schedules and methods.

The most effective sunlamps produce a proper balance of UVA and UVB. Adding more UVB typically creates a "reddening" lamp, not a better "tanning" lamp. To maximize the output and life of your tanning lamps:

Start with a high quality lamp.

- Clean and replace acrylic shields according to the manufacturer's specifications. Clean reflective surfaces behind the lamps periodically and/or when you re-lamp. Also, clean the lamps themselves.
- Maintain proper room temperatures with adequate air conditioning and ventilation. Higher temperatures can shorten the lamp's life and/or reduce its output.
- Incoming voltage must meet the equipment manufacturer's specifications. Low voltage will reduce tanning effectiveness while high voltage may reduce lamp life.
- Keep in mind that VHO (very high output) lamps tend to have a shorter life than HO (high output) lamps.

## Classification of Non-compliant Items

↓ Federal ID Number

↓ State Summary of Federal Requirements

Performance Requirements			
1040.20(c)(1)	Fails to comply with the irradiance ratio limits for UVC over UVB cannot exceed 0.003	Minor	Class B
1040.20(c)(2)(i)	Fails to incorporate a timer system with multiple timer settings adequate for recommended exposure time intervals	Major	Class A
1040.20(c)(2)(ii)	Maximum timer interval(s) is more than 3 times greater than the manufacturer's recommended maximum exposure time(s) as indicated on label	Major	Class A
1040.20(c)(2)(ii)	Maximum timer interval(s) is 2-3 times greater than the manufacturer's recommended maximum exposure time(s) as indicated on label	Minor	Class B
1040.20(c)(2)(ii)	Maximum timer interval(s) is less than 2 times greater than the manufacturer's recommended maximum exposure time(s) as indicated on label	Concern	Class C
1040.20(c)(2)(iii)	Maximum timer interval error > 30 percent	Major	Class A
1040.20(c)(2)(iii)	Maximum timer interval error > 20 and < 30 percent	Minor	Class B
1040.20(c)(2)(iii)	Maximum timer interval errors >10 and < 20 percent	Concern	Class C
1040.20(c)(2)(iv)	Timer automatically resets and causes radiation to resume	Major	Class A
1040.20(c)(3)	Fails to incorporate a control for termination of radiation emission (at minimum a timer system)	Major	Class A
1040.20(c)(4)(ii)	Fails to have protective eyewear	Minor	Class A
1040.20(c)(4)(ii)	Spectral transmittance of the protective eyewear exceeds a value of 0.001 over the wavelength UVA and UVB (200nm to 320nm)	Minor	Class B
1040.20(c)(4)(ii)	Spectral transmittance of the protective eyewear exceeds a value of 0.001 over the wavelength UVA (>320nm to 400nm)	Minor	Class B
1040.20(c)(4)(ii)	Spectral transmittance (>400nm) of protective eyewear does not allow user to clearly see to reset the timer	Minor	Class B
1040.20(c)(5)	UV lamp capable of insertion and operation in either the "single contact medium screw" or the "double-contact medium screw" lamp holders	Major	Class A
Label Requirements for Sunlamp Products			
1040.20(d)(1)(i)	Fails to have warning statement "Danger UV radiation..."	Minor	Class B
1040.20(d)(1)(ii)	Fails to have recommended exposure position(s)	Minor	Class B
1040.20(d)(1)(iii)	Fails to have directions for recommended exposure position(s) and warning order positions may result in overexposure	Minor	Class B
1040.20(d)(1)(iv)	Fails to have recommended exposure schedule	Minor	Class B
1040.20(d)(1)(v)	Fails to have time before expected results statement	Concern	Class C
1040.20(d)(1)(vi)	Fails to have ultraviolet lamp designation	Minor	Class B
Label Requirements for Ultraviolet Lamps			
1040.20(d)(2)(i)	Fails to have "Sunlamp- DANGER- Ultraviolet radiation. Follow Instructions	Minor	Class B
1040.20(d)(2)(iii)	Fails to have model identification	Minor	Class B
1040.20(d)(2)(iii)	Fails to have "Use ONLY in fixture equipped with timer"	Minor	Class B

## Classification of Non-compliant Items

**Label Specifications for Sun Lamp Products & Ultraviolet Lamps**

1040.20(d)(3)(i)	Fails to be permanently affixed or inscribed on the exterior surface of sunlamp product when fully assembled for use so as to be legible and readily accessible to view by person being exposed immediately before use of product	Minor	Class B
1040.20(d)(3)(ii)	Fails to be permanently affixed inscribed on the ultraviolet lamp so as to be legible or readily accessible to view	Minor	Class B
1040.20(d)(3)(iv)	Fails to have identification and certification labels on shelf package of ultraviolet lamps and coded mfr and date on ultraviolet lamp.	Minor	Class B
1040.20(d)(3)(v)	Labels contain statements or illustrations that are false or misleading diminish the impact of the required statements, or are prohibited by this chapter.	Major	Class A

**Label Requirements for Ultraviolet Lamps**

1040.20(e)	Inadequate instructions for use to avoid or minimize potential injury provided to purchaser	Minor	Class B
1040.20(e)(1)(i)	Failed to have reproduction of "Danger Ultraviolet Radiation warning statement..."	Concern	Class C
1040.20(e)(1)(ii)	Failed to have a statement of the maximum number of users and warning that only that number if protective eyewear was provided	Concern	Class C
1040.20(e)(1)(iii)	Failed to have instructions on the proper operations of the product including function, use and setting of the timer and other controls, and use of the protective eyewear.	Minor	Class B
1040.20(e)(1)(iv)	Failed to have instructions determining the correct exposure time and schedule for persons according to skin type	Minor	Class B
1040.20 (e)(1)(v)	Failed to have instructions for obtaining repairs and recommended replacement components and accessories which are compatible with the product, including compatible protective eyewear, ultraviolet lamps, timers, reflectors, and filters, if installed or used as instructed would result in continued compliance with the standard.	Minor	Class B
1040.20(e)(2)(i)	User instructions for ultraviolet lamps not sold with sunlamp products failed to have reproduction of the "Sunlamp-DANGER Ultraviolet radiation. Follow Instructions" and "Use ONLY in a fixture equipped with a timer" label	Minor	Class B
1040.20(e)(2)(ii)	User instructions for ultraviolet lamps not sold with sunlamp products failed to have a warning that instructions should be followed to avoid or minimize potential injury	Minor	Class B
1040.20(e)(2)(iii)	User instructions for ultraviolet lamps not sold with sunlamp products failed to have a clear identification by brand and model designation of all lamp models for which replacement lamps are promoted	Minor	Class B

1040.20(f)	Fail to account for all errors and statistical uncertainties in the process for changes in radiation emission or degradation in radiation safety with age of product.	Minor	Class B
1040.20(f)	Fail to make measurements for certification under operational conditions as recommended by the manufacturer.	Minor	Class B
1040.20(f)	Fail to position measuring instrument at recommended exposure position and oriented to result in maximum detection of the radiation.	Minor	Class B

## Sample Sunlamp Product Inspection and Field Test Checklist

**INSPECTION FIELD TEST CHECKLIST REPORT FOR SUNLAMP PRODUCTS  
MANUFACTURED AFTER SEPTEMBER 8, 1986**  
(Including Pertinent Parts of the Regulation)

FACILITY  
NAME: \_\_\_\_\_PERSON  
INTERVIEWED: \_\_\_\_\_ADDRESS  
: \_\_\_\_\_TELEPHONE  
NUMBER: \_\_\_\_\_FIELD TEST  
DATE: \_\_\_\_\_**WARNING LABEL [21 CFR 1040.20 (d)(1)]**Accessible To View: Yes/No Legible From One Meter Yes/No Exposure Position: Yes/No "DANGER" Statment.: Yes/No

If "NO" to any of the above,

Explain : \_\_\_\_\_

Exposure Schedule times: Minimum \_\_\_\_\_ min. / Maximum \_\_\_\_\_ min. Warning Label

Location \_\_\_\_\_

List All Lamp Types Designated On Unit

Labeling: \_\_\_\_\_

**CERTIFICATION LABEL [21 CFR 1040.20 (d) & 21 CFR 1010.2]**Adequate Certification: Yes/No Written in English Yes/No Legible : Yes/No

If "NO" to any of the above,

Explain: \_\_\_\_\_

**IDENTIFICATION LABEL [21 CFR 1040.20 (d) & 21 CFR 1010.2]**

Name &amp; Adress of Manufacturer: \_\_\_\_\_

Model #: \_\_\_\_\_ Serial#: \_\_\_\_\_ Date of

Manufacture: \_\_\_\_\_

**PROTECTIVE EYEWEAR [21 CFR 1040.20 (C) (4)]**

Maximum Numbers of Users for Sunlamp Product: \_\_\_\_\_

Number of pairs: \_\_\_\_\_ Model Type: \_\_\_\_\_

Manufacture: \_\_\_\_\_

Number of pairs: \_\_\_\_\_ Model Type: \_\_\_\_\_

Manufacture: \_\_\_\_\_

**LAMPS IN UNIT [21 CFR 1040.20 (d) (1) & (d) (2)] & LAMP COMPATIBILITY [21 CFR 1040.20 (e) 2 (iii)]**Total Number of Lamps in Unit: \_\_\_\_\_ Lamp Compatibility Information: YES/NO/ N/A



Lamp Model Designation: \_\_\_\_\_ Number of Lamps: \_\_\_\_\_

Lamp Model Designation: \_\_\_\_\_ Number of Lamps: \_\_\_\_\_

Facilities Lamp Supplier(s) (name, address, fax & phone #): \_\_\_\_\_

### **TIMER [21 CFR 1040.20 (C) (2)]**

Type of Timer: Digital/ Electro-mechanical / Spring Wound / Token / Other: \_\_\_\_\_

Timer Capabilities: \_\_\_\_\_ (Minimum Time) \_\_\_\_\_ (Maximum Time) Timer Interval (i.e. 1min increments): \_\_\_\_\_

Timer Interval Compatible with Exposure Schedule YES/NO, If "NO" Explain: \_\_\_\_\_

Timer Manufacturer Name and Address: \_\_\_\_\_

Timer Accuracy: 10% \_\_\_\_\_ min \_\_\_\_\_ sec, 50%: \_\_\_\_\_ min \_\_\_\_\_ sec, 100% \_\_\_\_\_ min \_\_\_\_\_ sec

(Note Record Timer Accuracy in minutes and seconds for 10%, 50% and 100% of Maximum Timer Capability for the Sunlamp Product. Remote timers are acceptable provided all other requirements of (C)(2)/(3) are maintained.

### **TERMINATION CONTROL [21 CFR 100.20 (C)(3)]**

Presence: YES/NO Description: Toggle / Push Pull / Push Button/ Other : \_\_\_\_\_

How is exposure re-initiated: \_\_\_\_\_

### **USER INSTRUCTIONS [21 CFR 1040.20 (e) (1)] (i.e. owners manual / operator manual)**

Provided by the Manufacturer: YES/NO, Available to Patrons: YES/NO, Contains Instructions To Determine Exposure Schedule and Skin Types: YES/NO, Contains Reproduction of "WARNING LABEL": Yes/NO, Contains Instructions for Obtaining Replacement.

Parts and Repairs: YES/NO, If "NO" to any,

Explain: \_\_\_\_\_

\_\_\_\_\_  
INSPECTING DISTRICT

\_\_\_\_\_  
NAME OF PERSON AND TITLE

## Chapter 10

## Ultraviolet Radiation

### Indoor Tanning Lamp Technology Evolves

The first indoor tanning lamps were not created for cosmetic purposes. They evolved from the growing study of photobiology, a science which examines the effects of light on life, and from the subsequent development of lamps which actually replicated the energy of sunlight.

Ultraviolet (UV) light is energy from the sun that cannot be seen, but its effects can be observed upon all living things. UV light is organized into three distinct energy ranges: UVA, UVB and UVC. This spectrum of energy is measured in nanometers (nm), with one nanometer equaling one billionth of a meter. The relationship between the length of the wavelength and the amount of energy it transports is the longer the wavelength, the lower the energy.

Ultraviolet light is organized from the shorter and higher energy wavelength (UVC) to the longer and lower energy wavelength (UVA). Each wave has its own location on the electromagnetic spectrum. UVC energy range is 200-280 nm, UVB range is 280-320 nm and UVA range is 320-400 nm. Visible light is 400-780 nm.

Typically, the longer the wave, the less harmful it is to humans exposed to its energy; the shorter the wave, the more intense, although each has a beneficial purpose. For instance, while UVC is the most powerful of ultraviolet rays and considered harmful to humans, hospitals use germicidal lamps with UVC (253.7 nm) to sterilize surgical instruments, water and the air in operating rooms because it can destroy bacteria and viruses.

People primarily are exposed to UVA and UVB light when spending time in the sun. UVC rays are generally filtered out by the earth's ozone layer. Some scientists hypothesize that erosion of the ozone layer may allow some UVC rays to reach the earth, but the research has not been conclusive.

### What is UVA Rays?

Most of us are exposed to large amounts of UVA throughout our lifetime. UVA rays account for up to 95 percent of the UV radiation reaching the Earth's surface. Although they are less intense than UVB, UVA rays are 30 to 50 times more prevalent. They are present with relatively equal intensity during all daylight hours throughout the year, and can penetrate clouds and glass.

UVA, which penetrates the skin more deeply than UVB, has long been known to play a major part in skin aging and wrinkling (photoaging), but until recently scientists believed it did not cause significant damage in areas of the epidermis (outermost skin layer) where most skin cancers occur. Studies over the past two decades, however, show that UVA damages skin cells called keratinocytes in the basal layer of the epidermis, where most skin cancers occur. (Basal and squamous cells are types of keratinocytes.) UVA contributes to and may even initiate the development of skin cancers.

UVA is the dominant tanning ray, and we now know that tanning, whether outdoors or in a salon, causes cumulative damage over time. A tan results from injury to the skin's DNA; the skin darkens in an imperfect attempt to prevent further DNA damage. These imperfections, or mutations, can lead to skin cancer

Tanning booths primarily emit UVA. The high-pressure sunlamps used in tanning salons emit doses of UVA as much as 12 times that of the sun. Not surprisingly, people who use tanning salons are 2.5 times more likely to develop squamous cell carcinoma, and 1.5 times more likely to develop basal cell carcinoma. According to recent research, first exposure to tanning beds in youth increases melanoma risk by 75 percent

## **What is UVB?**

UVB, the chief cause of skin reddening and sunburn, tends to damage the skin's more superficial epidermal layers. It plays a key role in the development of skin cancer and a contributory role in tanning and photo aging. Its intensity varies by season, location, and time of day. The most significant amount of UVB hits the U.S. between 10 AM and 4 PM from April to October. However, UVB rays can burn and damage your skin year-round, especially at high altitudes and on reflective surfaces such as snow or ice, which bounce back up to 80 percent of the rays so that they hit the skin twice. UVB rays do not significantly penetrate glass.

## **UVA Tanning Beds**

UVA rays are longer than their UVB counterparts and penetrate the skin's epidermis, which is composed of five layers. UVA rays penetrate more deeply than UVB rays, reaching the lower layers of the epidermis, which are known as the stratum spinosum and the stratum basale. When the rays of a UVA tanning bed hit a person's skin, they penetrate and cause the skin to produce melanocytes. These melanocytes produce melanin--a brown pigment that causes people to appear tan. The more melanin produced, the more tan a person appears.

## **UVB Tanning Beds**

UVB tanning beds utilize UVB rays, which are shorter than UVA rays. This means the rays penetrate less deeply into the skin, typically affecting the outer layers of the epidermis. When overexposed to UVB rays, a sunburn can occur, as the rays can cause the capillaries below the skin's surface to pop, creating a red, raw appearance. UVB rays are generally regarded as the chief contributors to skin cancers, such as melanoma or squamous cell carcinoma, according to kidshealth.org. Most tanning beds, however, emit less UVB rays than the sun, according to Vanderbilt University.

## **UVA and UVB Together**

UVA and UVB alone can be harmful to the skin, but when combined, as nature intended, they pose less risk of potential damage. Some studies suggest that, together, in balanced, moderate amounts, they can fortify, protect and enhance the body. Other studies discuss the effects of UV rays on the immune system, though this has been the subject of controversial debate.

Some studies show that UV rays depress the immune system at first, but then may have a repairing effect. UVA and UVB work in concert to produce a tan. UVB stimulates melanin and UVA oxidizes the stimulated melanin. This combination results in a darkening of the pigmentation and a natural protection against damage from the sun. The first tanning equipment and lamps used in the US emitted high levels of UVB light. But UVB alone is not effective in producing tans because it does not offer the oxidizing capability which tans the skin. Subsequent studies showed that tanning lamps with a higher content of UVA light could provide tans with a decreased risk of sunburn. In the 1980s, the technology evolved to lamps using ultraviolet light that emits a balanced combination of both UVA and UVB, thus Providing a "sun-similar" environment

## **UVC and How People are Exposed to all UV Radiation**

UVC rays have more energy than the other types of UV rays. Fortunately, because of this, they react with ozone high in our atmosphere and don't reach the ground, so they are not normally a risk factor for skin cancer. But UVC rays can also come from some man-made sources, such as arc welding torches, mercury lamps, and UV sanitizing bulbs used to kill bacteria and other germs (such as in water, air, food, or on surfaces).

## **Sunlight**

Sunlight is the main source of UV radiation, even though UV rays make up only a small portion of the sun's rays. Different types of UV rays reach the ground in different amounts. About 95% of the UV rays from the sun that reach the ground are UVA rays, with the remaining 5% being UVB rays.

## **The strength of the UV rays reaching the ground depends on a number of factors, such as:**

- Time of day: UV rays are strongest between 10 am and 4 pm.

- Season of the year: UV rays are stronger during spring and summer months. This is less of a factor near the equator.
- Distance from the equator (latitude): UV exposure goes down as you get farther from the equator.
- Altitude: More UV rays reach the ground at higher elevations.
- Clouds: The effect of clouds can vary, but what's important to know is that UV rays can get through to the ground, even on a cloudy day.
- Reflection off surfaces: UV rays can bounce off surfaces like water, sand, snow, pavement, or even grass, leading to an increase in UV exposure.
- Contents of the air: Ozone in the upper atmosphere, for example, filters out some UV radiation

The amount of UV exposure a person gets depends on the strength of the rays, the length of time the skin is exposed, and whether the skin is protected with clothing or sunscreen.

## Man-made sources of UV rays

People can also be exposed to man-made sources of UV rays. These include:

- **Sunlamps and sunbeds (tanning beds and booths):** The amount and type of UV radiation someone is exposed to from a tanning bed (or booth) depends on the specific lamps used in the bed, how long a person stays in the bed, and how many times the person uses it. Most modern UV tanning beds emit mostly UVA rays, with the rest being UVB.
- **Phototherapy (UV therapy):** Some skin problems (such as psoriasis) are helped by treatment with UV light. For a treatment known as PUVA, a drug called a psoralen is given first. The drug collects in the skin and makes it more sensitive to UV. Then the patient is treated with UVA radiation. Another treatment option is the use of UVB alone (without a drug).
- **Black-light lamps:** These lamps use bulbs that give off UV rays (mostly UVA). The bulb also gives off some visible light, but it has a filter that blocks most of that out while letting the UV rays through. These bulbs have a purple glow and are used to view fluorescent material. Bug-zapping insect traps also use “black light” that gives off some UV rays, but the bulbs use a different filter that causes them to glow blue.
- **Mercury-vapor lamps:** Mercury-vapor lamps can be used to light large public areas such as streets or gyms. They do not expose people to UV rays if they are working properly. They are actually made up of 2 bulbs: an inner bulb that emits light and UV rays, and an outer bulb that filters out the UV. UV exposure can only occur if the outer bulb is broken. Some mercury-vapor lamps are designed to turn themselves off when the outer bulb breaks. The ones that don't have this feature are only supposed to be installed behind a protective layer or in areas where people wouldn't be exposed if part of the bulb breaks.
- **High-pressure xenon and xenon-mercury arc lamps, plasma torches, and welding arcs:** Xenon and xenon-mercury arc lamps are used as sources of light and UV rays for many things, such as UV “curing” (of inks, coatings, etc.), disinfection, to simulate sunlight (to test solar panels, for example), and even in some car headlights. Most of these, along with plasma torches and welding arcs, are mainly of concern in terms of workplace UV exposure.

## Combination Tanning Beds

Most tanning beds contain some combination of UVA and UVB wavelengths in order for the user to achieve a tan. The reason for this is that UVA rays are associated with appearing more tan; however, UVB rays also are responsible for bringing melanin to the surface, which can make a person appear more tan. When present in combination, tanning bed lamps typically emit 93 to almost 99 percent UVA rays and 7 to 1 percent UVB rays.

## Faster Tanning

The reason why UVA and UVB rays cause a person to tan much faster than when a person is exposed to the sun is chiefly due to proximity. While the sun is millions of miles away, the ultraviolet light (UVA, UVB or other) given off by a tanning bed is much closer to a person's skin, which can speed the tanning process significantly.

# Chapter 11

## Tanning Beds

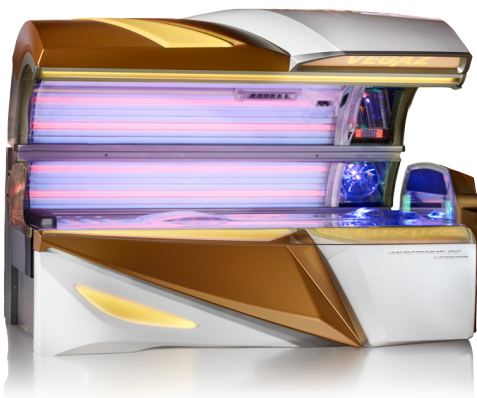
### History of the indoor tanning bed

Tanning beds were developed as a result of medical research conducted in Germany in the early 1900s. Researchers thought that UV rays would increase calcium levels and strengthen bones in some patients. Then in the 1970s, Friedrich Wolff, a German researcher used tanning lamps for his studies with athletes. During the course of his research, he noticed athletes had developed tan skin after exposure to the UV lamps, and tanning beds became popular in Europe and America. Early beds produced in the United States emitted high levels of UVB rays. UVB rays quickly produce sunburns, so researchers increased the levels of UVA light to produce a tan without less burning.

### Types of tanning beds

**Low-Pressure Tanning Beds:** These beds are the most popular. They use low-pressure fluorescent bulbs to mimic natural sunlight. A typical low-pressure tanning bulb emits a UVA to UVB ratio around ninety-five percent UVA, and five percent UVB. The higher amounts of UVB can lead to burning, but also produce higher amounts Vitamin D. A drawback of low-pressure beds is that they take more time to achieve a base tan and require more sessions to maintain your existing tan.

**High-Pressure Tanning Beds:** High-pressure tanning beds release higher amounts of UVA rays. UVA rays penetrate deeper into your skin. Conversely, they contain lower amounts of UVB, which leads to less burning as you tan. With high-pressure beds you can establish a base tan 6 to 8 times faster than with low-pressure. They also result in a deeper tan, which means you need to tan less frequently to maintain your color.



**Level 1, 2, and 3 Tanning Beds:** Tanning salons use the concept of “levels” to correlate with the intensity emitted by the bulbs. There are no hard and fast rules, but generally speaking lower levels are associated with low-pressure lamps and level three beds are associated with high-pressure bulbs. The level of bed you choose will likely depend upon the intensity of tan you want to achieve and how frequently you schedule your sessions.

**Horizontal and Vertical Beds:** As their names suggest, in a horizontal bed you lie down for the duration of the session. With vertical beds you stand in a booth where the tanning bulbs are mounted behind Plexiglas and emit rays from all sides.

## Chapter 12

## Photosensitizers

### Chemical Photosensitivity

#### Another Reason to Be Careful in the Sun

by Craig D. Reid., Ph.D.

Since childhood, my brother Blair always developed a dark tan without ever sun burning. Now a college soccer coach in Iowa, he is constantly outside practicing in the sun. Recently Blair suffered severe sunburn after only 45 minutes of sun exposure on a cool, partly sunny morning. Consulting his physician, he learned that the commonly prescribed colitis medication Azulfidine (sulfasalazine), which he was using at the time for a colon infection, was the cause of his problems. Azulfidine is one of the many medications included in the Food and Drug Administration's most recent listing of medications that increase sensitivity to light and can cause a wide variety of health problems known as photosensitivity disorders. In some individuals, these medications can produce adverse effects when the person is exposed to sunlight and other types of ultraviolet (UV) light of an intensity or for a length of time that would not usually give the person problems. Some products are more likely to cause reactions than others. And not everyone who uses the products will be affected.

### Photoreactions

Chemicals that produce a photoreaction (reaction with exposure to UV light) are called photo reactive agents or, more commonly, photosensitizers. After exposure to UV radiation either from natural sunlight or an artificial source such as tanning booths or even those "purple-lighted" mosquito zappers, these photosensitizers cause chemical changes that increase a person's sensitivity to light, causing the person to become photosensitized. Medications, food additives, and other products that contain photo reactive agents are called photosensitizing products.

FDA has also reported that photo reactive agents have been found in deodorants, antibacterial soaps, artificial sweeteners, fluorescent brightening agents for cellulose, nylon and wool fibers, naphthalene (mothballs), petroleum products, and in cadmium sulfide, a chemical injected into the skin during tattooing.

Photo reactive agents, such as Azulfidine, can cause both acute and chronic effects. Acute effects, from short-term exposure, include exaggerated sunburn-like skin conditions, eye burn, mild allergic reactions, hives, abnormal reddening of the skin, and eczema-like rashes with itching, swelling, blistering, oozing, and scaling of the skin. Chronic effects from longterm exposure include premature skin aging, stronger allergic reactions, cataracts, blood vessel damage, a weakened immune system, and skin cancer.

Widely used medications containing photo reactive agents include antihistamine, used in cold and allergy medicines; nonsteroidal anti-inflammatory drugs (NSAIDs), used to control pain and inflammation in arthritis; and antibiotics, including the tetracyclines and the sulfonamides or "sulfa" drugs.

Sometimes this quality can be put to good medical use. For example, two well-known photo reactive chemicals, psoralens and coal-tar dye creams, are used together with UV lamps to treat psoriasis, a chronic skin condition characterized by bright red patches covered with silvery scales.

### Pioneering Research

European scientists pioneered photosensitivity disorder research during the 1960s. In 1967, Danish researchers attributed strange skin lesions (any abnormal change on the skin) on women to perfumed soap. In 1967, British researchers discovered that sandalwood oil in sunscreens and facial cosmetics caused photoallergies and later reported that quindoxin, a food additive in animal feed also caused phototoxic erythematous skin patches on British farmers handling the feed.



Shortly thereafter, French scientists demonstrated that bergamot oil in sunscreens caused photosensitivity disorders. German researchers isolated photo reactive agents in colognes, perfumes and oral contraceptives.

In 1972, American scientists linked sunlight-activated aniline compounds (found in drugs, varnishes, perfumes, shoe polish, and vulcanized rubber) to hives and skin conditions such as dermatitis and dandruff.

Scientists were soon publishing laundry lists of photo reactive agents found in these substances as well as those in hair dyes, hair styling creams, and household items such as shoe polish and mothballs. Current research focuses on identifying what photo reactive agents are found in which medicinal products and how to control photosensitivity disorders.

Photosensitizers can cause either photo allergic or phototoxic reactions.

### **Photoallergies'**

In photo allergic reactions, which generally occur due to medications applied to the skin, UV light may structurally change the drug, causing the skin to produce antibodies. The result is an allergic reaction. Symptoms can appear within 20 seconds after sun exposure, producing eczema-like skin conditions that can spread to no exposed parts of the body. But sometimes, photo allergic reactions can be delayed. For example, Yuko Kurumaji reported in the October 1991 issue of Contact Dermatitis that photo allergic sensitivity disorders to the topically applied NSAID Suprofen (not approved for use in the United States) took up to three months to develop

Other regularly used products that can cause photo allergic reactions are cosmetics that contain musk ambrette, sandalwood oil, and bergamot oil; some quinolone antibacterial; and the over-the-counter (OTC) NSAID pain relievers Advil, Nuprin and Motrin (ibuprofen), and Aleve (naproxen sodium).

### **Phototoxicity**

Phototoxic reactions, which do not affect the body's immune system, are more common than photo allergic reactions. These reactions can occur in response to injected, oral or topically applied medications

In phototoxic reactions, the drug absorbs energy from UV light and releases the energy into the skin, causing skin cell damage or death. The reaction occurs from within a few minutes to up to several hours after UV light exposure. Though sunburn-like symptoms appear only on the parts of the body exposed to UV radiation, resulting skin damage can persist.

For example, Henry Lim, M.D. reported in the March 1990 issue of Archives of Dermatology that several patients previously exposed to photo allergens continued to have phototoxic skin eruptions up to 20 years after discontinuing medication use, even though they avoided further exposure to the photo allergens.

Frequently prescribed medication that cause phototoxic reactions include tetracycline antibiotics, NSAIDS, and Cordarone (amiodarone), used to control irregular heartbeats.

Because drug-induced photosensitivity disorder symptoms mimic sunburns, rashes and allergic reactions, many cases go unreported. Also, although research has shown that the numbers of photosensitized individuals may be high, most people do not associate the sun's light with the development of their skin eruptions.

### **Photophobia**

Some medications can cause photophobia. Although literally, photophobia is fear of light, photophobic photosensitivity disorder patients avoid light not because they're afraid of it, but because their eyes are painfully sensitive to it. Some medications that induce photophobia include several drugs prescribed for irregular heartbeat, such as Crystodigin (digitoxin) and Duraquin (quinidine), and several drugs for diabetes, such as Tolinase (tolazamide) and Orinase (tolbutamide).

## Who Gets a Reaction?

The degree of photosensitivity varies among individuals. Not everyone who uses medications containing photo reactive agents will have a photoreaction. In fact, a person who has a photoreaction after a single exposure to an agent may not react to the same agent after repeated exposures.

On the other hand, people who are allergic to one chemical may develop photosensitivity to another related chemical to which they would normally not be photosensitive. In such cross- reaction, photosensitivity to one chemical increases a person's tendency for photosensitivity to a second. For example, J.L. de Castro reported in the March 1991 issue of Contact Dermatitis that 17 patients allergic to the antiseptic thimerosal, used in some contact lens preparations, developed photosensitivity to the NSAID Feldene (piroxicam), yet none of them had had any previous photoreaction to Feldene.

Although those with fair skin are more susceptible to photosensitizing, it is not uncommon for dark-skinned individuals to have chronic photo dermatitis.

People infected with HIV, the virus that causes AIDS, are more susceptible to photosensitive disorders so they need to exercise special care in UV light exposure. In a study published in the May 1994 Archives of Dermatology, Amy Paper, M.D., reported that if apparently healthy patients exhibit certain photo distributed skin problems of unknown origin, the possibility of HIV infection should be considered.

What is termed a "photo-recall" can take place when a non-photo reactive product prompts the repeat of a previous reaction to a photo reactive agent.

Photo reactive products can also aggravate existing skin problems like eczema; herpes, psoriasis and acne, and can inflame scar tissue. They can also precipitate or worsen autoimmune diseases, such as lupus erythematosus and rheumatoid arthritis, in which the body's immune system mistakenly destroys it. Craig D. Reid, Ph.D., is a writer in New Haven, Conn. ([www.fda.gov/fdac/features/496\\_sun.html](http://www.fda.gov/fdac/features/496_sun.html))

## Photosensitizing List

**Due to the continuous changes to the list, these are just examples of medications and foods**

**CERTAIN FOODS/DRUGS DO NOT MIX WITH ULTRAVIOLET LIGHT. ANYONE TAKING ANY MEDICATION SHOULD CONSULT WITH A PHYSICIAN PRIOR TO TANNING.**

Antihistamines	Anticonvulsants	Antifungals	Anti-inflammatory drugs (Ibuprofen, Ketoprofen, Naproxen, etc.)
Antiseptics	Antiseptics	Antibiotics	Anticholesterol
Antidepressants	Antipsychotic Medications	Artificial Sweeteners	Blood Pressure Medications
Coal Tar Products (Tegrin, Denorex)	Major Tranquilizers Sulphur based meds	Chloroquine	Cosmetics
Oral Contraceptives & estrogen	Diuretics (fluid Pills)	Some deodorants (perfumes, colognes)	Some Herbal Products
	Some Antimalarials-fansidar (a sulfa drug)		
Amoxapine	Anesthetics (Procaine group)	Angelica	Anthracycline
Anthraquinone	Antidepressants	Antihistamines	Antimalarials Apressazine
Apresoline-Esclrol	Arsenicals	Astemizole	Auranofin
Aureomycin	Azastadine	Azo Ganthalol Azo Ganstisin	Bactrim Barbiturates
Bavachin (corylifolia)	Belladonna & Opium Rectal suppositories	Bendroflumethiazine	Benzedryl
Benzene	Benzopyrene	Benthiastide	Bergamot
Betaxolol	Bithionol (Actamer, lorchidol)	Blankophores (sulpha derivatives)	Botulinum Toxin type A
Coal Tar derivatives	Cold Salts	Combipres	Compazine
Contraceptives, oral	Corzide	Chromolyn	Cyclamates
Cyclobenzaprine	Cyclopentolate	Cyproheptadine	Cadmium sulfide
Calcifediol	Calcitriol	Calcium Cyclamate	Capozide
Captopril	Carbamazepine (Tegretol)	Carbamazepine & trimethadione	Carbinoxamine d-form
Carbutamide (Nadisan)	Cedar Oil	Clover	Chloroquine
Chlordiazepoxide	Chlorophyll	Chlorothiazide (Diuril)	Dacarbazine

Dicyanine-A Diethylstilbes- trol	Diflunisal Digaloyl Trioleate	Digitoxin	Diphenhydramine (hydro- chloride)
Diphenylpraline	Dirpres	Diuretics	Diuril
Diutensen-R	Doxazosin	Doxepin	Doxycycline
Doxycycline Hyclate	Dyazide Enalapril	Encainide	Enduronyl
Eosin	Erythrocine	Esimil	Estazolam
Estrogens	Estrone	Ethambutol	Ethionamide
Fluorouracil	5-Fluorouracil (5-Fu)	Fluoxetine	Fluphenazine
Flurbiprofen	Flutamide	Fosinopril	Furazolidone
Furocoumarins	Furosemide	Gentamicin	Glipizide
Glyburide	Glycerol P Aminobenzoate (sunscreen)	Gold Salts (compounds)	Gold Sodium Thiomalate
Griseofulvin (Fulvicin)	Griseofulvin illtramicrosized	Halogenated carbanilides	Halogenated phenols
Halogenated salicylanilides	Haloperidol	Hematoporphyrin	Hexachlorophene (rare)
Hydrochlorothiazide (Esidri, HydroDiuril)	Hydroflumethiazide	Hydrpres	Hydroxychloroquine
Hydroxypropyl Cellulose	Hyoscyamine	Ibuprofen	Idoxuridine
Imapramine	Imapramine HCL (Trofranil)	Indapamide	Inderide Indomethacin
Interferon ALFA-2B	Iohexol	Isocarboxazid	Isothipencyl (Theruhistin)
Isothipendyl( Theruhistin)	Isotretinoin	Ketoconazole	Ketoprofen
Labetalol	Lantinin Lavender Oil Le- vamisole	Limbitrol Lopressor	Lovastatin
Loxanine	Methdilazine	Methotrexate	Methotrimeprazine
Methoxasalen	5-Methoxypsoralen	8-Methoxypsoralen	Methsuximide
Methyclothiazide	Methylene blue	Methylene orange	Minoxidol
Moduretic	Monochlorhenamid	Monoglycerol paraamino- benzoate	Muromonab CD3
Musk Ambrette	Nabilone	Nadison	Nalidixic Acid (Neg Gram)
Naphthalene	Naproxen	Neuroleptics	Neatral red
Nifedipine	Norepinephrine Bitrtrate	Norethynodrei&Diethylstil- bestrol	Norfloxacin
Normozide	Nortriptyline (Aventryl)	Nortriptyline & protriptyline	Ofloxacin
Olsalazine	Orange Red	Oreticyl	Orinase (Orabetic)
Ornade	Oxytetracycline (Terramycin)	Pacatal	Para-dimethylamino azo- benzene
Paramethadione	Paraphenylenediamine	Pediazole	Penicillin derivatives (gris- eofulvin)
Pergolide Mesylate	Peroline	Perphenazine	Phenanthrene Phenazine
Porphyryns	Prinzide	Procaine	Procarbazine
Prochlorperazine	Profriptyline(Vivactil)	Promazine Hydrochloride	Promethazine
Promethazine Hydro- chlo- ride (Phenergan)	Protriptyline	Quinethazone ( Hydromax)	Quinidine
Quinidine Sulfate	Quindine Polygalecturonate	Quinine	Ramipril
Retin-A	Rose Bengal	Rue	Ru-Tuss II
Salicylanilides	Salicylates	Salutensin/Salutensindemi	Sandlewood oil

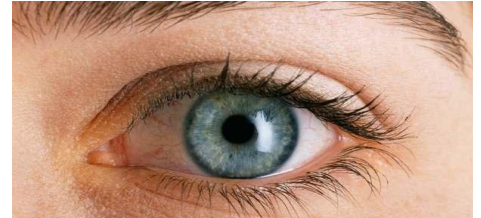
Selegiline	Ser-Ap-Es	Serpasial-Esidrix	Silver Salts
Spansule	Sparine	Sitibamidine Isethio- nate	Sulfacetamide
Sulfacytine	Sulfadimethoxine	Sulfaguanidine	Sulfamerazine
Sulfamethoxazole	Sulfanilamide	Tenoretic	Terfenadine
Terramycin	Tetrachlorosalicy- lanilide (TCSA)	Tetracyclines	Therahistin
Thiazides (Diurilhydrodiuril, etc.)	Thiophene Thiopropazate Dihydro- chloride (Dartal)	Thioridazine	Tribromosalicylanilide (TBS)
Trichlormethiazide (Metahydrin)	Tridone	Triethylene Melamine (TEM)	Trifluoperazine
Trifluoperazine and Trifluo- promazine	TriflupromazineHydro-chloride (Vesperin)	Trilafon	Trimeprazine
Trimeprazine Tartrate (Temaril)	Trimethadione (Tridione)	Trimethoprim	Trimethylpsoralen
Tripyrathiazine Sulf- amethox- azole	Trimipramine	Trinalin Repetabs	Tripelennamine
Tripolidine	Tripolidine and chlorpheniramine	Tropicamide	Trypaflavin
Trypan blue	Ultraoxpsoralen	Vaseretic	Vesprin Water Ash Wood tars and petroleum products
Vidarabine	<b>FOODS</b>	Carrots	Celery
Citrus Fruits	Clover	Coumarin	Dill
Eggs	Figs	Garlic	Ginko Biloba
Grass (wheat, barley)	Lady's Thumb (tea)	Lime oil	Mustards
Onions	Parsley	Parsnips (vegetables)	Saint John's Wort
Smartweed (tea)	Vanilla oil		

## Chapter 13

## Eye Protection

### What Happens If You Don't Wear the Goggles in a Tanning Bed?

When you practice indoor tanning at a tanning salon, you will be handed a special pair of goggles prior to entering the tanning bed. You might disregard them in fear of getting tan marks around your eyes, but these goggles do not serve an important purpose. They are necessary during indoor tanning because they help protect the eyes from damage.



### Purpose

The main reason you are handed a set of goggles when entering a tanning bed is for the safety of your eyes. These goggles protect your eyes from the harmful UV rays. These ultraviolet rays are the same as the UVA and UVB rays from the sun, which are dangerous. Wearing goggles is not the same as keeping your eyes closed. Your eyelids alone won't protect your eyes from the rays.

### Why You Need to Protect Your Eyes from the Sun

Ultraviolet (UV) radiation is the invisible high energy rays from the sun that are just beyond the violet/ blue end of the visible spectrum. More than 99 percent of UV radiation striking the eye is absorbed by the anterior structures of the eye, although some of it does reach the light-sensitive retina. This radiation is not useful for vision and there are good scientific reasons to be concerned that UV absorption by the eye may contribute to age-related changes in the eye and a number of serious eye diseases. Protection can be achieved by simple, safe and inexpensive methods such as wearing a brimmed hat, but the best protection is achieved by using eyewear that absorbs UV radiation.

### What part of UV radiation is harmful to my eyes?

Ultraviolet radiation in sunlight is commonly divided into two components: UVB represents the short wavelength radiation (180 to 315 nanometers) that can cause sunburn and predispose to skin cancer. UV-A (315 to 400 nanometers) exposure causes tanning, but is also thought to contribute to aging of the skin and skin cancer. Clinical experience and evidence from accidents and experimental studies show that UVB is more damaging, presumably because it has higher energy. Most of the UVB is absorbed by the cornea and lens of the eye; therefore it can cause damage to these tissues but will not normally damage the retina. However, the retina can be damaged if exposed to UVB. UVA radiation has lower energy, but penetrates much deeper into the eye and may also cause injury. Sunlight contains much more UVA than UVB. Neither UVB nor UVA has been shown to be beneficial to the eye, and neither contributes to vision. Optimal sun protection should screen out both forms of UV radiation..

### What eye diseases are caused by or affected by sunlight?

Ultraviolet radiation can play a contributory role in the development of various ocular disorders including age related cataract, pterygium, cancer of the skin around the eye, photo keratitis, keratitis and corneal degenerative changes, and may contribute to age-related macular degeneration.

Cataract is a major cause of visual impairment and blindness worldwide. Cataracts are a cloudiness of the lens which occurs over a period of many years. Laboratory studies have implicated UV radiation as a causal factor for cataract. Furthermore, epidemiological studies have shown that certain types of cataract are associated with a history of higher exposure to UV and especially UV-B radiation.



Age-related macular degeneration is the major cause of reduced vision in the United States among people over age 55. Exposure to UV and intense violet/blue visible radiation is damaging to retinal tissue in laboratory experiments, thus scientists have speculated that chronic UV or intense violet/blue light exposure may contribute to aging processes in the retina.

Pterygium is a growth of tissue on the white of the eye that may extend onto the clear cornea where it can block vision. It is seen most commonly in people who work outdoors in the sun and wind, and its prevalence is related to the amount of UV exposure. It can be removed surgically, but often recurs, and can cause cosmetic concerns and visual loss if untreated.

Cancer of the skin, including the eyelids and facial skin is a well-known consequence of excessive UV exposure. Photo keratitis is essentially reversible sunburn of the cornea resulting from excessive UV-B exposure. It follows from spending long hours on the beach or snow without eye protection. It can be extremely painful for 1-2 days and can result in temporary loss of vision. There is some indication that long term exposure to UV-B can result in corneal degenerative changes.

### **Am I at risk?**

Everyone is at risk. No one is immune to sunlight-related eye disorders. Every person in every ethnic group in developed and developing nations alike is susceptible to ocular damage from UV radiation that can lead to impaired vision.

### **What factors increase the risk?**

Any factor that increases the eyes sunlight exposure will increase the risk for ocular damage from UV radiation. Individuals whose work or recreation involves lengthy exposure to sunlight are at greatest risk.

Since UV radiation is reflected off surfaces such as snow, water and white sand, the risk is particularly high on the beach, while boating or at the ski slopes. The greatest during the Midday hours, from 10 a.m. to 3 p.m. and during summer months. Ultraviolet radiation levels increase nearer the equator, so residents in the southern US are at greater risk. UV levels are also greater at high altitudes.

Since the human lens absorbs UV radiation, individuals who have had cataract surgery are at increased risk of retinal injury from sunlight unless a UV absorbing intraocular lens was inserted at the time of surgery. Individuals with retinal dystrophies or other chronic retinal diseases may be at greater risk since their retinas may be less resilient to normal exposure levels.

### **Are children at risk?**

Children are not immune to the risk of ocular damage from UV radiation. They typically spend more time outdoors in the sunlight than adults. Solar radiation damage to the eye may be cumulative and may increase the risk of developing an ocular disorder later in life. It is prudent to protect the eyes of children against UV radiation by insisting they wear a brimmed hat or cap and sunglasses. Sunglasses for children should have lenses made of plastic rather than glass for added impact protection.

### **How can my eyes be protected from UV radiation?**

Ultraviolet radiation reaches the eye not only from the sky above but also by reflection from the ground, especially from water, sand, snow and other bright surfaces. Protection from sun light can be obtained by using both a brimmed hat or cap and UV absorbing eyewear. A wide-brimmed hat or cap will block roughly 50 percent of the UV radiation and reduces UV radiation that may enter above or around glasses. Ultraviolet absorbing eyewear provides the greatest measure of UV protection, particularly if it has a wraparound design to limit entry of peripheral rays.

Ideally, all types of eyewear, including prescription spectacles, contact lenses and intraocular lens implants, should absorb the entire UV spectrum (UV-B and UV-A). UV absorption can be incorporated into nearly all optical materials currently in use, and does not interfere with vision. Polarization or photosensitive darkening are additional sunglass features that are useful for certain visual situations, but do not, by themselves, provide UV protection.

For outdoor use in the bright sun, sunglasses that absorb 99-100 percent of the full UV spectrum to 400 nm are recommended. Additional protection for the retina can be provided by lenses that reduce the transmission of violet/blue light. Such lenses should not be so colored as to affect recognition of traffic signals. The visible spectrum should be reduced to a comfortable level to eliminate glare and squinting. Individuals who also wear clear prescription eye wear outdoors should consider using lenses which absorb 99-100 percent of the UV radiation to 380-400 nm.

### What does the label on a pair of sunglasses tell me?

There is presently no uniform labeling of sunglasses that provides adequate information to the consumer. Labels should be examined carefully to insure that the lenses purchased absorb at least 99- 100 percent of both UV-B and UV-A. Advise your clients to be wary of claims that sunglasses “block harmful UV” without saying how much they block.

### Types of FDA approved eyewear



**EVO Flex Sunnies Flexible Tanning Bed Goggles:** features a flexible high-rise nose bridge to eliminate tan lines and an elastic headband to assure perfect fit. Slimmer eye cups minimize the “raccoon-eye” phenomenon associated with tanning indoors. Block over 99% of the UVB & UVA rays. Can be used with or without the string.



**Soft Podz:** features a flex-fit nose piece and a secure band on the inside. Flex-fit tan through nose pieces. Flexible enough to use in stand up tanning booths. Comes with an elastic string and soft pouch for easy storage.



**Proviews (aka winkies):** Disposable eyewear, Complete UVA and UVB protection. Comes in packages of 210 pairs.

### What is customer rapport and how do you build it?

Customer rapport requires open lines of communication and trust. It is very difficult to develop consistent, as well as repeat business, without a solid rapport with the customer. As a business you desire lifelong customer's not one-time customers and that is accomplished through communication, trust and making the customer feel valued. This will lead to great service and increased sales.

### Four Ways to Build Rapport

1. Be Yourself. Don't try to be who you think. The customer wants you to be. Just relax and be yourself. If you are true to yourself and true to your customer you will see true growth.
2. Be Inviting. Be open and friendly; greet each individual customer with a kind comment, a firm handshake, or an inviting smile. You might even go out of your way and hold a door for someone.
3. Be Attentive. Show your customer that you are genuinely interested in them. Don't focus on yourself and your sales focus on the needs and wants of the customer. Your sales will follow.
4. Be Prepared. Focus on your appearance, know your product, and know your customer.

### Customer Complaints

Customer rapport requires open lines of communication and trust. It is very difficult to develop consistent, as well as repeat business, without a solid rapport with the customer. As a business you desire lifelong customer's not one-time customers and that is accomplished through communication, trust and making the customer feel valued. This will lead to great service and increased sales

### Five Keys to Customer Complaints

- Listen. Be patient, listen attentively, and document the entire complaint before attempting to respond. Make sure you have ALL the information.
- Stay Rational. Often a customer will become irrational during the complaint process, let them know, "you understand" and you empathize with their individual situation. Do not engage in an argument with a customer
- State your Policies. Chances are your company has policies for many of the complaints that will arise, calmly but firmly state your company policy for the issue and let them know that you and the company will do everything "in your power".
- Contact Necessary Personnel. More often than not the person receiving the complaint is not the person that can fix it. It is very important to contact the correct personnel in a timely manner to address the situation. This will ensure that all complaints are handled in the most appropriate manner. Do not pass the customer around from person to person.
- Documentation. Be sure to document all contacts with the person who filed the complaint as well as any other people involved in the process. Including but not limited to fellow employees, contractors, manufacturers, and anyone else possibly involved.

## Chapter 15

## Maintenance



### How to Maintain Your Tanning Bed

Proper maintenance and care of your tanning bed will ensure the longevity and usefulness of your machine. Whether its used for commercial or residential purposes, over time your tanning bed may need to have parts repaired or replaced.

#### Keep a Maintenance Log

Keeping a maintenance log will help you keep track of your beds condition. Keeping track of when new lamps were installed will allow you to keep track of when it may be time to change them. Keep in mind that when you change lamps you should also change out starters if your bed requires them.

#### Cleaning Equipment

You should wipe down your tanning bed after each use. It is important that you are using a bed cleaner on your acrylics that does not contain alcohol or ammonia because it will harm your acrylics. Weekly in-depth cleaning should be done on fans, filters, facial glass, and lamps. Ballast trays should be cleaned on a regular basis removing dust or any other items that may of fallen in.

#### Manuals

Every salon or residential tanning location should have a manual for each bed. Your tanning bed manual will provide you with all the electrical specifications that is needed with your tanning bed. Each manual is equipped with the manufacture's lamp requirements, exposure schedule, assembly instructions, part including lamp or bulb replacement. Your manual will most likely provide information on trouble shooting and error codes.

Need a manual? You can always contact us for a copy of the user manuals



## Tanning Bed Cleaning

The best tanning bed cleaner is one that is designed specifically for tanning beds. It will contain both cleaning and sanitizing agents, or belong to a kit that provides these agents. The cleaner should prevent buildup that can block UVA and UVB rays, and for this reason some cleaners are designed specifically for a UVA or UVB tanning bed. Generally, cleaners are available as pre-mixed solutions, do-it-yourself (DIY) mixes, and cleaning kits. For information about properly cleaning all tanning bed components, consult the bed's instruction manual.

A tanning bed cleaner should do more than just clean your tanning bed. It should also disinfect and sanitize the bed. This is especially important considering hair, sweat, and other bodily fluids, as well as tanning lotion build up, getting left behind after each tanning session. Of course, since there are various types of tanning beds, the parts that get touched and contaminated vary. Still, every tanning bed is a dirty tanning bed after it has been used.

Therefore, choosing a tanning bed cleaner with a disinfecting or sanitizing property is crucial. Regular water, even when mixed with soap, is not effective for cleaning a tanning bed. It can even harm the acrylic and other parts of the bed. Some tanning bed owners believe using water and white vinegar can properly clean and disinfect the bed, but in reality this mixture can also cause damage. Some manufacturers offer separate products for sanitizing and cleaning a tanning bed, but you might find it more convenient to purchase an all-in-one tanning bed cleaner and disinfectant.

Make sure the tanning bed cleaner you choose is made specifically for tanning beds. Other kinds of cleaners, like kitchen and bathroom cleaners, can damage your bed's acrylic. Your body can absorb any cleaner left behind, and most cleaners designed for tanning beds prevent this risk. Take time to look for any cleaners designed specifically for a UVA tanning bed or a UVB tanning bed, as these cleaners are designed to prevent buildup that can cause UVA and UVB blockage. Any cleaner not designed specifically for tanning beds can cause buildup and prevent UVA and UVB rays from penetrating the acrylic.

## TANNING BED AND/OR BOOTH MAINTENANCE RECORD

Unit Manufacturer	Model :
Canopy S/N	Bottom S/N
ID#	

[illegible]



## Heavy Duty Maintenance

Maintenance should be done based on the number of hours on the sunlamps in each bed. Cleaning should be done four times during the life of the lamps.

This is based on a lamp that is rated for \_\_\_\_\_ hours.

100-500 Hours	Remove and clean/polish on both sides, whip lamps and interior with damp cloth. Check fans and vacuum around openings
300-350 Hours	Deep Cleaning
500-550 Hours	Same as 100-150 hours
600 -1000 Hours	Deep cleaning and lamp change

## Tools to have on hand

Acrylic cleaner/ polish/scratch remover	Ammonia
Bucket	Clean, lint free cloths
Cotton swabs	Glass Cleaner
Sponge	Vacuum cleaner w/brush attachment & crevice tool
Warm water	UV meter

**Notes:**

[illegible]

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