
WOLFF
SYSTEM
FREQUENTLY
ASKED
QUESTIONS

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Wolff System
Technology Corporation

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WOLFF SYSTEM

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INTRODUCTION

Wolff System works hard to maintain its status as the most recognizable name in indoor tanning. Our products represent reliability, quality and integrity and have been very profitable choices for many salon owners over the years.

Since the inception of our industry, people have sought the answers to a vast array of questions. "How does the tanning process work?"..., "Why do I need to use protective eyewear?"..."How many hours in the sun does a 20 minute indoor tanning session equate to?"...are among the questions. Wolff System continues to reply to these inquiries in support of the indoor tanning salon operator.

A few years ago, we compiled the first edition of our "Frequently Asked Questions" booklet. Tanning salons from New York to Los Angeles have used this booklet as their source for factual answers to help their staff and clients pursue responsible tanning.

We have expanded and updated our original issue of the F.A.Q. to help you and to continue our leadership role in the indoor tanning industry.

THE TANNING PROCESS

WHAT IS THE TANNING PROCESS?

UVB (from the sun or in a low pressure indoor tanning unit) stimulates the melanocytes in the upper skin layer (called the epidermis) which then produce melanin. The pale pink melanin granules formed in the melanocytes are stored around the core of the keratin cells. In this manner the pigment granula protects the sensitive DNA located inside the nuclei without impeding the other parts of the cell receiving ultraviolet light. UVA then darkens the melanin, thereby giving the skin a dark appearance. A tan gradually fades as the skin cells migrate to the surface.

IS PIGMENTATION INDUCED BY EXPOSURE TO INDOOR TANNING EQUIPMENT THE SAME AS A TAN OBTAINED FROM THE SUN?

Both the sun and low pressure indoor tanning equipment emit UVA and UVB, a combination of ultraviolet light which most efficiently produces pigmentation and darkening in the skin. The most prominent difference in exposure is the times in which the tanning process takes place and also the external factors existing in outside sunlight. Some examples include the time of year and day, altitude, cloud coverage, pollutants, proximity to the equator, reflective surface, etc. Indoor tanning is in a controlled environment while outdoor tanning is in an uncontrolled environment.

WHY DOES A TAN DISAPPEAR?

The "tan," or pigmentation process, occurs in the epidermis, the top skin layer. The epidermis replaces all its skin cells every 28–30 days. Cells in the inner portion of the top skin layer divide themselves, migrate to the surface, gradually die and slough off. Skin cells contain melanin, and as a result of UV exposure, rise to the surface and flake off. Therefore, a tan can be maintained only by repeated exposure to UV light.

WHAT DOES THE EXPOSURE SCHEDULE TELL US?

The exposure schedule imprinted on a unit or found in the unit's user information booklet indicates the appropriate length of a tanning session for each skin type. It is derived as a result of testing performed on a unit equipped with a certain UV lamp product.

Testing is generally performed at an independent laboratory at the manufacturer's request. The Food and Drug Administration requires such testing before a unit can be marketed in the United States.

An exposure schedule is based on a person's Minimal Erythemal Dose. A MED is the least amount of UV exposure a person can receive and generate pigmentation while avoiding sunburn. Taking into account the spectral output of the bed and the tanning capabilities of a particular user, the dosage (in terms of length of session) is calculated and translated into the exposure schedules which comes with all indoor tanning equipment. Most exposure schedules reflect graduated exposure times: exposure starts slowly and increases carefully.

HOW OFTEN IS A PERSON ALLOWED TO TAN?

Since 1986, the Food and Drug Administration guidelines suggest that a 48 hour time interval should pass between tanning sessions. Pigmentation and/or erythema (sunburn) may not be fully visible for between 12–24 hours. Thus two tanning sessions within this 24 hour period could cause an unintentional burn. In general, maximum pigmentation can be built up gradually, following the exposure schedule, in 8–10 tanning sessions.

A 20 MINUTE SESSION IN A TANNING BED IS EQUIVALENT TO HOW MANY HOURS IN THE NATURAL SUN?

It is difficult to make a simple comparison between the sun and modern indoor tanning equipment. Just as various kinds of indoor tanning lamps and equipment differ in spectral output and energy emitted, the sun's strength is dependent on several factors as well, such as the time of day or year, the latitude, cloud cover, pollution and reflection. Consequently, there is no formula for relating indoor tanning exposure times to outdoor exposure times.

WHEN IS THE SUN THE STRONGEST?

UVB irradiance is greatest between 10:00 am and 2:00 pm. UVA continues throughout the day and can exceed that of UVB by 10 to 1,000 fold. In the northern hemisphere, UVB is most intense in summer months, but UVA is more consistent throughout the year.

HOW DOES THE DEPLETION OF THE OZONE LAYER AFFECT US?

The increased use of chlorofluorocarbons has resulted in a depletion of the ozone layer. A very thin level of ozone surrounds the earth and serves to filter a certain amount of UV light, particularly the shorter wavelengths.

Ozone depletion is the subject of some controversy, but it undoubtedly has a serious impact on the earth. Moreover, some researchers have suggested that plant, animal and human life are well conditioned to adapt to new environmental circumstances. Still, should the trend continue, it could have ramifications for all forms of life. Without the filtering of UV light we will be exposed to more of the shorter wavelengths. Even though indoor tanning can help gradually build pigmentation (the body's own way of avoiding excessive exposure to UV light), one should be aware of how much exposure is proper, and take particular care when outdoors.

WHY IS IT IMPORTANT TO DEVELOP A BASE TAN?

Moderate exposure to UVB helps develop a natural barrier in the skin to protect the body from excessive UV light. UVB stimulates the production of melanin which then surrounds the core of cells to protect the DNA. This melanin substance absorbs and/or scatters radiation. In addition, exposure to UVB thickens the epidermis (the top skin layer), thereby limiting the amount of UV light which could penetrate the lower skin layers. If this photo-protection (base tan) is not developed or a sunscreen is not used, sunburn can occur and the DNA of the skin cells may become damaged. Repeated sunburn can result in damaged cells which then reproduce themselves. This can be the beginnings of skin cancer. Therefore, it's wise to use a broadband sunscreen while exposed over a prolonged period of time or in sun intensive regions.

CAN WE TAN THROUGHOUT THE YEAR WITHOUT HARMING THE SKIN?

Skin damage may occur if a person overexposes the skin to UV or combines exposure indoors with exposure to the natural sun. One should always be mindful of the dangers of overexposure, as it can lead to chronic skin damage.

CAN THE UV RAYS EMITTED BY INDOOR TANNING LAMPS PASS THROUGH THE SKIN AND AFFECT INTERNAL ORGANS?

The UV rays emitted by indoor tanning lamps do not emit sufficient energy to penetrate past the skin layers. Thus, despite claims and rumors to the contrary, internal organs are not directly impacted by longer wave UV light.

IS IT HARMFUL TO WEAR CONTACT LENSES WHEN TANNING INDOORS?

There exists no known reason why contact lenses may not be worn while tanning indoors. When the eyes are kept closed and proper protective eyewear worn, UV light is blocked from penetrating the eye or lens. However, the heat generated by indoor tanning equipment could cause the eye to dry a bit, thereby making the lens uncomfortable. Just as one should moisturize the skin after tanning, contact lens wearers may also use the eyedrops recommended by his/her optometrist.

DOES THE UV LIGHT EMITTED BY INDOOR TANNING LAMPS KILL GERMS ON THE ACRYLIC SHEET?

Even though UV lamps are commonly used to kill germs on objects such as surgical instruments and hairdressers' combs, the rays emitted from such lamps are of a very different wavelength than those of indoor tanning lamps. Germicidal lamps emit UVC. The energy from a low pressure lamp, which is transmitted through a unit's acrylic shield, is UVB and UVA. Therefore, it is unlikely that this light will destroy germs and bacteria which collect on the acrylic. Thorough cleaning of the acrylic shield with a proper disinfectant is absolutely essential after each use.

WHY DO SOME DERMATOLOGISTS WARN PEOPLE AGAINST SUN EXPOSURE?

While some dermatologists may advocate total avoidance of all sun exposure, the media seems to quote only those who do. Many dermatologists and others from the medical community have acknowledged the need for moderate sun exposure, while advocating the use of sunscreens.

WHY DO SOME PEOPLE ITCH AFTER TANNING INDOORS?

Itching and/or rashes may be linked to several unrelated causes, so it is important to obtain a tanning history on each customer. Some people are naturally photosensitive upon exposure to UV. Others are susceptible to heat rashes, a cause totally unrelated to UV light.

Certain chemicals or ingredients found in cosmetics, lotions, shampoos, and even the acrylic cleaner may cause itching as well. Rashes caused by these products generally occur in localized areas on which the products were applied. Customers should be advised to tan with the skin as clean as possible. If discontinued use of a suspected product does not inhibit the rash, a person should discontinue any exposure to UV light until the condition subsides or see a physician.

WHAT CAUSES WHITE SPOTS?

There are several reasons why white spots become noticeable on the body once the tanning process begins.

- Patches of skin which do not tan could be the result of genetic determination. The melanocytes in that certain area may simply not be efficient at producing melanin.

- White spots could also appear due to the presence of a fungus which lives on the skin's surface. While the fungus is harmless, it does absorb UV light which would normally penetrate the skin. This fungus did not appear as a result of tanning; it merely becomes noticeable once tanning occurs. It can be remedied through the use of prescription drugs or some other topical lotions.

- White patches of skin, which are often prominent on the shoulder blades and just above the buttocks, can be caused by the pressure from the body as it reclines on a hard surface. This pressure inhibits the flow of blood through that area of the skin. Since blood carries oxygen which is essential to the tanning process, this area does not tan. Periodic body shifting during tanning will make these white patches disappear.

- Certain medications can react unfavorably with exposure to UV light. For example, birth control pills can cause blotches and uneven pigmentation of the skin.

CAN I ADVERTISE THAT INDOOR TANNING IS "SAFER THAN THE SUN"?

There can be no claims or advertisements regarding the relative safety of indoor tanning. The Federal Trade Commission works with the Food and Drug Administration to monitor misbranding, mislabeling, or misleading claims regarding indoor tanning equipment and products. You may state that indoor tanning is a controlled environment to obtain a cosmetic tan, as opposed to the uncontrolled aspects of natural sunlight.

CAN INDOOR TANNING CURE ACNE?

Phototherapy (or use of UV light) has been effective in easing the skin problems common to this condition. There are also many drugs, including tetracycline and Retin-A, which are also widely used for treatment of acne. Because these drugs can render the skin photosensitive, one must avoid UV exposure when medicated. Furthermore, the use of UV light for acne treatment should only be administered by a qualified physician. The Food and Drug Administration

prohibits indoor tanning equipment operators from asserting that equipment use is beneficial for any purpose other than obtaining cosmetic coloring.

DOES TANNING CAUSE MELANOMA, A FATAL FORM OF SKIN CANCER?

There is no conclusive evidence which substantiates that malignant melanoma is caused by gradual, moderate UV exposure. However, those who are predisposed to develop melanoma due to hereditary factors may intensify this condition with exposure to indoor or outdoor UV.

While some studies have suggested a link between severe sunburn and malignant melanoma, there are other studies available that prove an inverse relationship. In a study published in the International Journal of Cancer in 1989 (known as the Western Canada Melanoma Study), Canadian researchers found a significant inverse association between melanoma and chronic or long-term occupational sun exposure in men, with the lowest risk in those with maximum occupational exposure. This suggests that repeated exposure may be protective. Gradual, moderate exposure is not believed to be a strong influential factor as melanoma generally develops on those areas not normally exposed to UV light.

IS IT POSSIBLE TO CONTRACT AIDS AND OTHER SEXUALLY TRANSMITTED DISEASES FROM INDOOR TANNING EQUIPMENT?

The passing on of most sexually transmitted diseases requires the exchange of bodily fluids from one person to another. This exchange does not take place by using indoor tanning equipment. However, this does not mean that other infectious conditions cannot be passed on by use of

unsanitary equipment and protective eyewear. Therefore, it is absolutely essential that both the acrylic and reusable protective eyewear be sanitized with the appropriate disinfectant after each use.

CAN TANNING INDOORS CAUSE CANCER?

Excessive exposure to any UV light source may cause skin cancer. If one is predisposed to skin cancer or has a hereditary link, exposure to UV (indoors or outdoors) should be avoided. It is recommended that all UV exposure be moderate.

MAY PEOPLE WHO HAVE HAD SKIN CANCER TAN INDOORS?

It is strongly recommended that those who have suffered skin cancer NOT tan either indoors or outdoors. Such people may be genetically predisposed to contract skin cancer or be unusually susceptible to it. Any exposure may trigger another outbreak. Furthermore, for liability reasons, it is advised to refuse tanning services to such people.

DOES TANNING HELP TREAT DEPRESSION OR SEASONAL AFFECTIVE DISORDER (SAD)?

There exists a growing body of scientific evidence which indicates that some people actually require more light exposure in order to function properly. Exposure to bright light, such as that emitted by the mid-day summer sun, causes the brain to suppress the release of the hormone melatonin. Melatonin acts as a depressant in the body if generated during the daytime. Thus, when affected people are exposed to longer hours of bright light, they feel happier, euphoric and more able to enjoy life. Bright light sources

emitting only visible light, are now frequently used to successfully treat Seasonal Affective Disorder (SAD) and Sub-syndromal Seasonal Affective Disorder (SSAD).

CAN INDOOR TANNING EQUIPMENT BE USED TO TREAT PSORIASIS?

The Food and Drug Administration forbids making representations regarding the benefits of indoor tanning other than its cosmetic effect. Therefore, one may not make medical claims about indoor tanning equipment.

However, phototherapy (or UV light treatment) can be used to ease the symptoms of psoriasis. The treatment is rendered by a trained physician with equipment specifically designed for such purpose.

Many salon operators report that customers who suffer mild forms of psoriasis improved after indoor tanning, and many psoriatics do purchase indoor tanning beds.

DOES UV LIGHT SUPPRESS THE IMMUNE SYSTEM?

The effects of UV on the immune system have been the subject of controversial debate. While physical therapists have reported a distinct activation of the immune system, dermatologists have noted a depression of the system from UV rays. Both are correct. Ultraviolet radiation has a suppressive effect and, at the same time, an activating effect. Because of this two-rein principle (up and down regulation), light controls our energetic and aggressive immune system just as a rider controls an unruly horse. One should speak, therefore, of a modulating effect from UV radiation. For example, UV light is utilized in aiding successful organ transplantation. It is used to suppress the immune system initially so that the body will not reject

the organ. On the other hand, UV light fixtures are often installed in submarines, schools and hospitals in northern latitudes because exposure is considered beneficial in warding off some infectious diseases. Some studies have also found that after initially suppressing the immune system, that same exposure to UV light will subsequently enhance immune response.

DOES INDOOR TANNING EQUIPMENT AID IN THE TREATMENT OF OSTEOPOROSIS?

Osteoporosis is a disease characterized by frequent bending and/or breaking of the bones due to lack of sufficient calcium. Adequate calcium intake is essential for the development of strong bones and teeth. It is widely recognized that calcium is not absorbed by the body in the intestine unless vitamin D3 is present. Vitamin D3 is often referred to as the "sunshine" vitamin because it is produced in the skin upon exposure to UVB.

Some studies show* that indoor tanning lamps (which emit a certain amount of UVB) may initiate the production of vitamin D3 which in turn aids in calcium absorption. Yet, due to Food and Drug Administration regulations, those in the indoor tanning industry may not make medical representations concerning their product. Until sufficient research has been submitted to the Food and Drug Administration which provides that exposure to a specific UV tanning lamp may aid in the treatment of osteoporosis, such a claim is prohibited.

**Biological Effects of Light, "Evaluation of the Effect of Suntanning Bed Radiation on the Synthesis of Provitamin D3 in an In Vitro Model," T.C. Chen, et.al.*

CAN TANNING CAUSE WRINKLES?

Excessive exposure, particularly to high intensity UVA, can destroy the resilient fibers of the lower skin layer, thereby causing the top skin layer to sag. Thus, elastosis or wrinkling appears. UVA, if not blocked by pigmentation and skin thickening in the outer skin layer, can penetrate to the dermis and destroy skin elasticity. Thus, if one makes the decision to tan, it is recommended that one use a light source which contains both UVA and UVB. Even if a person uses a sunscreen, if it does not block both UVA and UVB, damage to the lower skin layer can still occur upon overexposure.

IS INDOOR TANNING AN EFFECTIVE TREATMENT FOR ARTHRITIS?

The Food and Drug Administration forbids making any medical claims in connection with indoor tanning equipment. In addition, there exists no current scientific research which shows that phototherapy is an effective treatment for arthritis.

Some tanners claim that indoor tanning does in fact ease arthritic pain temporarily. Such improvement is most likely attributable to the heat generated by indoor tanning equipment rather than the UV output of the lamps. Again, a salon operator may not promote any health related aspects connected to indoor tanning.

CAN PEOPLE WHO HAVE LUPUS ERYTHEMATOSUS TAN INDOORS?

Exposure to UV light is not recommended for those suffering from lupus. Sufferers from lupus should never tan indoors and should always apply a sunscreen when outdoors.

WHO SHOULD OR SHOULDN'T TAN: HOW, WHEN, WHY

WHAT ARE SKIN TYPES?

"Skin Typing" is a method for determining one's natural ability to produce melanin. Skin types are hereditary and cannot be altered by outside influences.

Skin types range from a Skin Type I (albino) to Skin Type VI (African American). Skin types are classified according to a person's tendencies to sunburn and/or tan. Most indoor tanners are a skin type II, III or IV. These people tend to sunburn upon exposure to varying dosages of UV light, but also have the ability to develop some pigmentation. While all of us, regardless of skin type, have about the same number of melanocytes in our skin, we vary in our ability to produce melanin. It is this production capability which results in a certain skin type.

SUN-REACTIVE SKIN TYPES USED IN CLINICAL PRACTICE

	Skin Reactions To Solar Radiation	Examples
I	Always burns easily and severely (painful burn); tans little or none and peels	People most often with fair skin, blue eyes, freckles; unexposed skin is white
II	Usually burns easily and severely (painful burn); tans minimally or lightly, also peels	People most often with fair skin, red or blonde hair, blue, hazel or even brown eyes; unexposed skin is white
III	Burns moderately and tans about average	Normal average Caucasian; unexposed skin is white
IV	Burns minimally, tans easily and above average with each exposure; exhibits IPD (immediate pigment darkening) reaction	People with white or light brown skin, dark brown hair, dark eyes (e.g., Mediterraneans, Orientals, Hispanics, etc.); unexposed skin is white or light brown
V	Rarely burns, tans easily and substantially; always exhibits IPD reaction	Brown-skinned persons (e.g., Amerindians, East Indians, Hispanics, etc); unexposed skin is brown
VI	Never burns and tans profusely; exhibits IPD reaction	Blacks (e.g., African and American blacks, Australian and South Indian Aborigines); unexposed skin is black

IF A PERSON CANNOT TAN IN THE SUN, WILL HE/SHE TAN INDOORS?

Normally, a person tans indoors only as well as he/she is able to tan outdoors. Yet, those fair-skinned people who generally cannot tolerate the uncontrollable rays of the sun often achieve some color when tanning indoors. This can be attributed to a different spectral output as well as carefully timed tanning sessions in a controlled tanning environment. Skin type, heredity, and individual photosensitivities determine who will have success tanning indoors.

WHY SHOULD I TAN?

Sunlight is absolutely essential to all life on earth. There are various reasons, both biological and psychological, why exposure to light is desirable. In addition, most people believe they look better with a tan. Thus, having a tan may provide a psychological uplift for some.

HOW CAN ONE BE SURE HE/SHE IS TANNING PROPERLY?

All exposure, whether indoors or outside should be gradual and moderate. For the commercial tanning salon operator, it is necessary that each customer's skin type be determined, and that the corresponding recommended exposure schedules be strictly followed. More information on the risks and benefits of UV exposure can be obtained from industry publications, seminars, trade associations, and suppliers of indoor tanning equipment.

Each indoor tanner must bear responsibility for his/her own tanning priorities. It is the responsibility of those in the retail business to provide enough information to customers to enable them to make an informed decision.

When in doubt, the equipment operator should exercise prudence, caution and good judgment when giving advice on tanning practices.

HOW OFTEN IS A PERSON ALLOWED TO TAN?

Currently, the Food and Drug Administration guidelines suggest that a 48 hour time interval should pass between tanning sessions. Pigmentation and/or erythema (sunburn) may not be fully visible for between 12–24 hours. Thus two tanning sessions within this 24 hour period could cause an unintentional burn. In general, maximum pigmentation can be built up gradually, following the exposure schedule, in 8–10 tanning sessions.

IF A LAPSE IN REGULAR INDOOR TANNING OCCURS, MAY A PERSON RESTART AT THE SAME EXPOSURE TIME?

Because the development of pigmentation is a gradual process which continues to occur only upon repeated exposure to UV light, a person who stops tanning for an extended period of time will probably have to start at the beginning again. This means that the initial session must be the minimum amount of time recommended for that person's skin type. Subsequent session times may be gradually increased, leaving at least 48 hours between each exposure. This schedule assumes, however, that no unusual reaction or sunburn occurs. Should an indoor tanner experience an adverse reaction after tanning, one should terminate all exposure until the condition disappears. Only then should one begin tanning again. If the condition does not disappear within a reasonable amount of time, one should consult a physician.

WHAT IS A "PHOTOSENSITIZING AGENT"?

Photosensitivity can be defined as a chemically induced change in the skin that makes an individual unusually sensitive to light. It may be caused by diseases, allergies, cosmetics and medications.

Medications such as psoralen, diuretics, birth control pills, tranquilizers, antibiotics and high blood pressure medicine may also affect one's photosensitivity. Certain substances such as citrus fruits, celery, cosmetics and soaps can also increase photosensitivity. Harsh disinfectants, some lotions and sunscreens may also cause sensitizing reactions. An updated chart listing these may be obtained from a variety of sources. It should be posted in clear view in the salon.

CAN TEENS AND CHILDREN TAN INDOORS?

At this time, there appears to be no biological reason why teenagers and children could not tan indoors. However, it is important for all salon operators to ensure that customers make an informed choice regarding indoor tanning. It is questionable whether a minor can make such a decision. Many states, for example, have used the following guidelines...recommending that persons under 18 years old obtain the written consent of their parent or legal guardian and also advising that persons under 15 be accompanied by a parent or legal guardian. Such precautions may be necessary for liability considerations. In addition, those states which have enacted their own regulations for the indoor tanning industry often include provisions which include parental consent for minors.

MAY PREGNANT WOMEN TAN INDOORS?

There is no current scientific and/or biological reason why a pregnant woman cannot tan indoors or outdoors. In fact, some researchers believe the production of vitamin D caused by exposure to UVB may be beneficial to both the mother and fetus. However, there is some concern that the heat build-up which inevitably occurs when tanning indoors or outdoors may adversely affect some pregnant women, just as a sauna or jacuzzi might. A pregnant woman may not be comfortable in the tanning equipment. Furthermore, for liability reasons, it is recommended that pregnant women consult their physician before tanning indoors or outdoors.

MAY PEOPLE WHO HAVE HAD SKIN CANCER TAN INDOORS?

It is strongly recommended that those who have suffered skin cancer NOT tan either indoors or outdoors. Such people may be genetically predisposed to contract skin cancer or be unusually susceptible to it. Any exposure may trigger another outbreak. Furthermore, for liability reasons, it is advised to refuse tanning services to such people.

LAMPS AND EQUIPMENT

HOW MUCH UVB CAN BE EMITTED BY AN INDOOR TANNING LAMP?

There is no regulatory limitation on the amount of UVB which can be emitted by an indoor tanning lamp. However, there is a limit on the maximum amount of minimal erythemal doses. Manufacturers of lamps must submit all operational emission data to the Food and Drug Administration, but this agency does not specify which spectral ratios are acceptable. The current types of lamps and their respective spectral emissions are determined more by customer demand and market considerations than by government regulations. The FDA's concern with spectral output is that the dosage be limited to that amount which induces pigmentation production while avoiding overexposure.

WHAT ARE LAMP UVB PERCENTAGES AND WHAT DO THEY MEAN?

Virtually nothing. UVB percentage is derived from dividing the measured UVB energy of a lamp by its UVA energy. This is a common method of "rating" sunlamps, but it is only a relative figure and doesn't tell us much about the tanning power or effectiveness of a given lamp. It is not an accurate measure of a lamp's true performance.

UVB is a critical component for the production of melanin, which is then darkened by exposure to UVA. The total amount of UV energy, and whether the UVA and UVB are from the most effective spectral regions are the determining factors in a lamp's performance. In real life examples, you might find lamp A rated at 5% UVB with only 20 watts of total UV energy compared to lamp B with 32 watts of total UV energy and only 3.5% UVB. The lamp with the highest

total energy will deliver a more natural, lasting tan; precise emission from the most effective spectral regions would improve results further.

An effective sunlamp must produce a balance of UVA and UVB. UVB percentage doesn't tell us anything about a lamp's useful life, total output or tanning effectiveness.

WHAT IS COMPATIBILITY?

To determine the proper lamp for a particular tanning unit, you are first required to follow the equipment manufacturer's recommended lamp replacement guide on the equipment label, and/or in the owner's manual. However, if a lamp other than the original equipment lamp is used, it must be compatible according to FDA guidelines. In order for a lamp to be compatible to the original lamp furnished with the equipment, the output of the replacement lamp must be within +/– 10%, and have the same erythemic and melanogenic effect on the tanner. The replacement lamp may not alter the exposure time of the equipment, which must be certified before the equipment can be marketed in the U.S. This certification verifies the minimal erythemal dose (MED) which is the amount of UV exposure a person can receive without burning, while generating pigmentation.

It is important to note that compatibility is not defined as "same as or better than" the original lamp. Compatible lamps may have unequal life and different spectral characteristics from different phosphor blends that produce completely different results. Thus, compatibility only addresses the issues of erythema and melanogenesis, and signifies nothing about the technical qualities of the lamp or the results you will see for your tanners.

HOW DO I MAXIMIZE LAMP LIFE?

Most manufacturer's list a rated lamp life for their tanning lamps. Generally speaking, the rated life is that point where output has depreciated by 30%. This is, however, an estimate of performance under optimal conditions. Also, UV lamps experience their sharpest decline during the first 50–100 hours. Therefore, insist on knowing the rated life from zero hours, since that is how you will employ them in your equipment. Higher quality phosphors, such as those used in Wolff System lamps, tend to be more stable and longer lasting.

In order to maximize the output and life of your tanning lamps, first start with a high quality lamp. Make sure that acrylic shields are periodically cleaned and replaced according to the manufacturer's specifications. Clean reflective surfaces behind the lamps when you re-lamp. Higher temperatures can shorten a lamp's life or reduce its output, or both, so maintain proper room temperatures with adequate air conditioning and ventilation.

Incoming voltage must meet the equipment manufacturer's specifications. Low voltage will reduce tanning effectiveness while high voltage will reduce lamp life and increase temperatures. Keep in mind that VHO (very high output) lamps tend to have a shorter life than HO (high output) lamps.

Measure your equipment's output with a lamp meter after cleaning and adding new lamps. Make sure that outside variables are consistent from one reading to the next (voltages, temperature, distance from meter to the acrylic and clean acrylic, lamps and reflectors). Record the initial results, then monitor and record output periodically.

When output has declined 20—30% from initial readings for that equipment, re-lamp and clean before you get complaints from your customers.

EVALUATE YOUR LAMP	
Evaluate your lamp choice in terms of total owning cost and not just price.	
$\frac{\text{Cost of 24 new lamps}}{\text{Hours Useful life}}$ = Average hourly owning cost	
Example 1	$\frac{\$15 \times 24 = \$360}{1{,}000} = \$.36/hr$
Example 2	$\frac{\$12 \times 24 = \$288}{600} = \$.48/hr$
R E S U L T S	
The lamp in Example 2 costs 20% less to buy, but **33% more to own** than Example 1.	

IS THERE A "SHELF LIFE" ON LAMPS WHICH ARE SITTING IN INVENTORY? SHOULD I BE CONCERNED WITH THE PRODUCTION DATE CODE?

There is not a shelf life on tanning lamps sitting in inventory because the components used in the manufacturing process do not expire, age, deteriorate or spoil. The production date codes simply identify when the lamp was produced and should only be used as a reference.

WHAT IS THE DIFFERENCE BETWEEN A 10 MINUTE, 20 MINUTE AND A 30 MINUTE LAMP?

There are no 10 minute, 20 minute or 30 minute lamps. Perhaps a better question would be "What is the difference between a 10 minute, 20 minute or 30 minute bed? An indoor tanning lamp's performance is directly related to the equipment in which it is installed. The same lamp may perform differently in various models of equipment. Factors such as the transmissive quality of the acrylic shield, the distance of the lamps from the body, the ballasts used, electrical current/voltage, distance between the lamps, and the effectiveness of the reflector system, all determine what the exposure schedule and maximum timer interval will be.

All tanning units, regardless of timer interval or lamp type may produce a maximum of 4 MED's (minimal erythemal dose). An MED refers to the least amount of UV radiation a person can receive which induces a distinct erythema or "pinkening" of the skin within 7–24 hours following exposure. Always replace lamps with what is listed on the tanning unit label or a FDA compatible alternate.

WHAT IS THE DIFFERENCE BETWEEN HIGH OUTPUT (HO) AND VERY HIGH OUTPUT (VHO) LAMPS?

High Output (HO) lamps operate on an 80 or 100 watt ballast that generates between 800 and 1,000 milliamps. Very High Output (VHO) lamps are designed to operate on a 160 watt ballast that generates 1,500 milliamps. HO lamps are found predominantly in tanning beds while VHO lamps are principally found in stand-up units and larger beds. VHO lamps typically produce only 30% more output than HO lamps, although they consume 60% more energy. As such, VHO lamp life is generally shorter than that of HO lamps.

WHAT IS A WOLFF SYSTEM?

True "Wolff System" tanning units are produced only by a licensed manufacturer, and are equipped with Wolff brand lamps as original equipment. Each individual element of this combination (bed, lamp, reflector system and acrylic shield) was intentionally designed to function as an integral part of a system to deliver the highest performance and maximum user benefit. Only the suppliers who follow these guidelines may utilize the well-recognized Wolff System trademarked logo.

In terms of salon marketing, only salons that offer true Wolff System units may advertise the "genuine Wolff System." On a more technical note, substitute lamps may be non-compliant, and that could expose a salon to unnecessary risk - both regulatory and liability.

WHERE CAN I PURCHASE WOLFF SYSTEM PRODUCTS?

Wolff System Technology utilizes a network of Licensees and Distributors to market our products. Our licensees, typically, are original equipment manufacturers that have selected Wolff System as the original lamp for their tanning units. Our authorized network of licensees and distributors also service the indoor tanning industry with replacement lamps. Call us at 1-800-95 WOLFF or visit our web site at www.wolffsystem.com for the authorized supplier nearest you.

WHAT DOES THE EXPOSURE SCHEDULE TELL US?

The exposure schedule imprinted on a unit or found in the unit's user information booklet indicates the appropriate length of a tanning session for each skin type. It is derived

as a result of testing performed on a unit equipped with a certain UV lamp product.

Testing is generally performed at an independent laboratory at the manufacturer's request. The Food and Drug Administration requires such testing on units marketed in the United States.

An exposure schedule is based on a person's Minimal Erythemal Dose. A MED is the least amount of UV exposure a person can receive and generate pigmentation while avoiding sunburn. Taking into account the spectral output of the bed and the tanning capabilities of a particular user, the dosage (in terms of length of session) is calculated and translated into the exposure schedules which comes with all indoor tanning equipment. Most exposure schedules reflect graduated exposure times: exposure starts slow and rises carefully.

MUST EQUIPMENT MANUFACTURED BEFORE SEPTEMBER 1986 BE ALTERED IN ORDER TO BRING IT INTO COMPLIANCE WITH THE FOOD AND DRUG ADMINISTRATION'S REGULATION AMENDMENTS?

Only equipment manufactured after that date must meet the requirements of the amendments. However, the older equipment must continue to conform to the regulation existing at the time it was manufactured. For example, labels which have worn off or become illegible must be replaced by new warning labels in order to remain compliant. The equipment need not carry the new form of label nor must timers be replaced on pre-1986 equipment.

HOW DO HIGH PRESSURE & LOW PRESSURE TANNING EQUIPMENT DIFFER?

High pressure indoor tanning equipment utilizes metal halide lamps. These lamps emit UVC, UVB and UVA, but by means of an elaborate filtering mechanism, primarily only UVA is emitted during a tanning session. UVA can penetrate to the deeper layers of the skin, also affecting the resilient fibers. Thus, UVA is suspected of causing premature aging. Photosensitizing reactions can also be triggered by high intensity UVA.

Most indoor tanning equipment found in the United States is low pressure equipment that emits a combination of both UVA and UVB. The lamps are installed in either a bed or booth configuration to give total body exposure. A transmissive acrylic shield serves to filter out the shorter wavelengths.

AUXILIARY DEVICES AND PRODUCTS

IS A UVA METER AN ACCURATE TOOL TO MEASURE LAMP DEGRADATION?

In order to receive an accurate measurement of a lamp's degradation, one should take an average reading of the tanning lamps as soon as they are installed in their bed. The actual number is not important, it is merely a starting point. Periodically, you should check your lamps with the meter. We recommend that lamps be replaced when they have decreased in performance by 30%. The following factors affect the accuracy of a lamp meter: calibration, incoming voltage, the distance between the lamp and the meter, and the location of each reading (measured in three different locations on the lamp) and the time of day the readings are taken.

MUST ACRYLIC SHIELDS BE REPLACED PERIODICALLY?

Acrylic shields should be replaced according to the manufacturer's guidelines. Acrylics which show stress lines, cracks, and/or discoloration (yellowing) may block as much as 30%–50% of UV light transmission. It is difficult to observe acrylic deterioration: a UV meter, however, may aid in this determination.

MUST PROTECTIVE EYEWEAR BE WORN WHILE TANNING INDOORS?

Yes. The Food and Drug Administration (21 CFR 1040.20) requires that protective eyewear which meets its transmission specifications be supplied to each indoor tanner. Some state regulations require the salon operator to refuse tanning services to those who will not wear eyewear.

In addition, it is absolutely essential that protective eyewear be sanitized after every use in order to minimize the risk of spreading infection. Customers should be instructed to always wear protective eyewear in the manufacturers' recommended manner.

SHOULD ONE WEAR SUNGLASSES WHEN EXPOSED TO THE SUN?

Yes. More and more scientific evidence indicates that overexposure to both UVB and UVA can cause eye damage. Generally, UVB can cause short term injury, such as burning. Snow blindness is an example of immediate eye damage due to sunlight reflecting off snow, particularly at high altitudes. The long term effect of overexposure to UVB and the eyes is not yet known.

Prolonged unprotected exposure to UVA is cumulative and can cause cataracts, a clouding of the lens of the eye. Therefore, it is recommended that one wear sunglasses while outdoors, particularly those treated with UV resistant coating. The FDA is currently formulating standards for sunglasses so that consumers can determine the amount of UV transmission.

However, outdoor tanning sunglasses are NOT sufficient when tanning indoors. Use of indoor tanning equipment requires the utilization of FDA-compliant protective eyewear.

IS IT HARMFUL TO WEAR CONTACT LENSES WHEN TANNING INDOORS?

There exists no known reason why contact lenses may not be worn while tanning indoors. When the eyes are kept closed and proper protective eyewear worn, UV light is blocked from penetrating the eye or lens. However, the

heat generated by indoor tanning equipment could cause the eye to dry a bit, thereby making the lens uncomfortable. Just as one should moisturize the skin after tanning, contact lens wearers may also use the eyedrops recommended by his/her optometrist.

WHAT IS SPF?

SPF stands for "Sun Protection Factor" and is the standard means of expressing a sunscreen's effectiveness in protecting the skin. It represents a ratio of the minimal erythema dose (MED) to the MED on unprotected skin. The SPF value is the length of time a person can be exposed to UV when a sunscreen is applied compared to when it is not. For example, an SPF of 15 means one can be exposed 15 times longer with a sunscreen than without it.

WHAT IS BROADBAND SUNSCREEN?

Sunscreen chemical agents are divided up into three groups: those which absorb UVA, those which primarily absorb UVB and those which absorb both wavelengths. It is preferable to select broadband or full-spectrum sunscreens, as they protect against both UVB and UVA penetration. They also will help prevent the cumulative damage of photoaging (wrinkling) and can minimize photosensitivity reactions, both of which are caused by UVA.

WHAT IS THE DIFFERENCE BETWEEN A SUNBLOCK AND A SUNSCREEN?

Sunblocks are opaque formulations which absorb, reflect and scatter up to 99% of both UV and visible light. They are often used on localized, sun-sensitive areas such as the nose, lips, ears and shoulders. Because they are messy

and may stain clothing, sunblocks may not be practical for application over large areas. An example of a sunblock is zinc oxide.

On the other hand, sunscreens absorb specific wavelengths and are classified as drugs by the FDA. Sunscreens are considered more cosmetically refined due to their pleasing consistency and are, therefore, typically used for effective photoprotection.

WHAT IS A "PHOTOSENSITIZING AGENT"?

Photosensitivity can be defined as a chemically induced change in the skin that makes an individual unusually sensitive to light. It can be caused by diseases, allergies, cosmetics and medications.

Medications such as psoralen, diuretics, birth control pills, tranquilizers, antibiotics and high blood pressure medicine may also affect one's photosensitivity. Certain substances such as citrus fruits, celery, cosmetics and soaps can also increase photosensitivity. Harsh disinfectants, some lotions and sunscreens may also cause sensitizing reactions. An updated chart listing these may be obtained from a variety of sources. It should be posted in clear view in the salon.

DO TANNING ACCELERATORS WORK?

There are some substances that, when applied to the skin, give the perception of rapid color change. However, some of these substances are actually photosensitizers. In other words, they seem to make the skin more sensitive to UV light than normal. Unfortunately, this sensitization process often causes damage in the deeper skin layers. The

damage may not become apparent until years later. The FDA and FTC closely monitor all claims made regarding lotions and sunscreens. The Food and Drug Administration's current position is that no product submitted to it for testing has proven that it accelerates the tanning process without altering the skin's internal structure.

ARE ANY LOTIONS OR CREAMS BENEFICIAL TO THE TANNING PROCESS?

It is recommended that, in order to achieve the best tan, one keep the skin healthy. This includes regular cleaning and moisturizing. It is particularly important that before tanning, the skin be as clean as possible. However, one must ensure that the soaps, cleansers and moisturizers used do not contain photosensitizing substances which could cause a skin rash or burn upon exposure to UV light.

ARE "TANNING PILLS" SAFE?

The active substance in tanning pills is called canthaxin. Canthaxin is typically used as a food additive for color. The Food and Drug Administration has not approved its use for tanning purposes.

Tanning pills work by "dyeing" the skin an orangish color, thus giving the appearance of a tan. In fact, the tanning process has not taken place. Therefore, the color achieved by ingestion of tanning pills does not provide a natural photoprotection in the skin as does exposure to UV light. While a person appears to be darkly pigmented, a severe burn can develop should one be exposed to UV light. Furthermore, the long term effects of canthaxin ingestion have yet to be determined.

WHICH ENTITY IS RESPONSIBLE FOR OVERSEEING THE INDOOR TANNING INDUSTRY IN THE U.S.?

Because indoor tanning equipment is classified as a medical device, the Food and Drug Administration oversees the indoor tanning industry in the United States. It governs by way of two items of legislation, namely, the Food, Drug and Cosmetic Act and the Radiation Control for Health and Safety Act. The FDA is primarily concerned with regulating the manufacture and importation of indoor tanning equipment.

Some states have their own regulations pertaining to the indoor tanning industry as well. The states have the responsibility to promote the health, safety and welfare of their citizens. Therefore, state regulations tend to focus more on the retail tanning salon in an effort to minimize the possible risk of injury to the consumer by ensuring that the consumer has all the information necessary to make an informed decision about product use.

HOW DO FOOD AND DRUG ADMINISTRATION REGULATIONS AFFECT THE INDOOR TANNING SALON OPERATOR AND HIS/HER CUSTOMERS?

Even though Federal regulations directly affect the manufacturers and/or importers of indoor tanning equipment, the salon operator must also be aware of the Food and Drug Administration requirements in order to ensure his/her business remains compliant. The goal of the Food and Drug Administration regulations is to protect the user of the equipment from injury. There are three main provisions:

- First, the Food and Drug Administration requires all indoor tanning equipment to bear labeling which warns of any risk posed to the user. Equipment manufactured after September of 1986 must also exhibit a recommended exposure schedule based on individual skin type.

- Next, all equipment must have a functioning and accurate timing mechanism which will shut off automatically at the end of a tanning session. Beds are also required to have an emergency button (in some cases it may be the bed's timer) with which the user can shut off the equipment.

- Finally, the Food and Drug Administration requires that each piece of indoor tanning equipment be equipped with the original lamp listed on the bed's label or a FDA compatible or equivalent lamp. These provisions minimize the potential risk to the user when following the user instructions and recommended exposure schedule on the equipment.

IF FDA REGULATIONS ARE AIMED AT MANUFACTURERS AND IMPORTERS OF EQUIPMENT, WHY SHOULD THE RETAIL SALON OPERATOR BE CONCERNED WITH THEM?

The U.S. indoor tanning industry has arguably the most stringent regulations in the world. It is concerned with protecting the public's safety and with the retail environment in which this equipment comes into use by the customer.

The salon operator is ultimately held responsible for ensuring his/her equipment is FDA-compliant. The operator must make sure that all required warning labels are on the equipment, that the timer is functioning

properly, that the lamp utilized is FDA compliant for that certain type of equipment, and that FDA compliant eyewear is provided. If a non-compliant indoor tanning unit is received, the salon operator must contact the manufacturer and demand that it be brought into compliance. This may occur not only when purchasing a new bed but also when purchasing used equipment. A manufacturer's refusal to render the unit compliant should be brought to the FDA's attention.

WHAT IS COMPATIBILITY?

To determine the proper lamp for a particular tanning unit, you are first required to follow the equipment manufacturer's recommended lamp replacement guide on the equipment label, and/or in the owner's manual. However, if a lamp other than the original equipment lamp is used, it must be compatible according to FDA guidelines.

In order for a lamp to be compatible to the original lamp furnished with the equipment, the output of the replacement lamp must be within +/– 10%, and have the same erythemic and melanogenic effect on the tanner. The replacement lamp may not alter the exposure time of the equipment. This certification verifies the minimal erythemal dose (MED) which is the amount of UV exposure a person can receive without burning, while generating pigmentation.

It is important to note that compatibility is not defined as "same as or better than" the original lamp. Compatible lamps may have unequal life and different spectral characteristics from different phosphor blends that

produce completely different results. Thus, compatibility only addresses the issues of erythema and melanogenesis, and signifies nothing about the technical qualities of the lamp or the results you will see for your tanners.

WHAT IS THE DIFFERENCE BETWEEN A 10 MINUTE, 20 MINUTE AND A 30 MINUTE LAMP?

There are no 10 minute, 20 minute or 30 minute lamps. Perhaps a better question would be "What is the difference between a 10 minute, 20 minute or 30 minute bed? An indoor tanning lamp's performance is directly related to the equipment in which it is installed. The same lamp will perform differently in various models of equipment. Factors such as the transmissive quality of the acrylic shield, the distance of the lamps from the body, the ballasts used, electrical current/voltage, distance between the lamps, and the effectiveness of the reflector system, all determine what the exposure schedule and maximum timer interval will be.

All tanning units, regardless of timer interval or lamp type may produce a maximum of 4 MED's (minimal erythemal dose). An MED refers to the least amount of UV radiation a person can receive which induces a distinct erythema or "pinkening" of the skin within 7–24 hours following exposure. Always replace lamps with what is listed on the tanning unit label or a FDA compatible alternate.

CAN THE FDA OR STATE REGULATORY AGENCY CLOSE YOUR SALON? ARE THERE PENALTIES FOR FDA VIOLATIONS?

Yes. Should a violation be found upon FDA or state inspection of a tanning establishment, the agency has the right to detain, seize, close, or fine the establishment. Make sure that your salon always remains in compliance.

WHAT IS THE BEST WAY TO IMPROVE PROFESSIONALISM AND KEEP ABREAST OF DEVELOPMENTS IN THE INDOOR TANNING INDUSTRY?

The best means of gaining the educational training and marketing skills necessary to succeed in the indoor tanning industry is to belong to a trade association. While various state and local organizations have formed, all equipment owners and operators should become members of at least one industry-supporting organization, and actively participate in its programs. Trade magazines are ideal sources for up-to-date industry information. Industry trade shows are also another source for information and education. Only by acting on factual information and supporting each other can those involved in indoor tanning enhance the image of individual businesses and the professionalism of the industry as a whole.

HOW CAN THE INDOOR TANNING EQUIPMENT OWNER/OPERATOR PARTICIPATE IN LOBBYING EFFORTS FOR THE INDOOR TANNING INDUSTRY?

One can determine the status of any pending legislation by contacting his/her local state government representative. If regulations are already in place, the operator can contact the enforcing agency (such as the health department or consumer affairs division) to obtain a copy of their provisions and an explanation of compliance. If regulations are still in the formulative stage, it is essential that indoor tanning salon owners become a resource for legislators.

Generally speaking, all regulatory agencies must go through certain administrative proceedings in which those parties affected by any proposed regulations have an opportunity to comment on their impact. The parties

have a right to object to any provision which is "unduly burdensome" to the industry, and which does little to protect the health, safety and welfare of citizens.

Without comment at the administrative level, it is very possible that regulations in their proposed form will become enacted. Once enacted, legislation can be changed only by amendment. Proposed amendments must also go through the administrative process. Therefore, it is advantageous for the indoor tanning salon owner to be aware of the status of his/her state regulation and be prepared to comment on its effectiveness as it relates to making the industry more responsible.

WHAT REPRESENTATIONS CAN THE INDOOR TANNING INDUSTRY MAKE REGARDING PRODUCTS AND SERVICES?

An indoor tanning unit is considered a medical device by the Food and Drug Administration because use of the product causes a structural change in the body, notably the skin. However, those selling the service or product may not allege any medical benefit as a result of its use. Indoor tanning equipment provides a controlled method to obtain a cosmetic tan. Therefore, operators may not represent indoor tanning as a way to feel healthier, treat the symptoms of psoriasis or stimulate the production of vitamin D in the skin, even though its use might accomplish all these things. The Federal Trade Commission works closely with the Food and Drug Administration in monitoring representations made about indoor tanning. False representations may be forwarded to either of these agencies.

CAN I ADVERTISE THAT INDOOR TANNING IS "SAFER THAN THE SUN"?

There can be no claims or advertisements regarding the relative safety of indoor tanning. The Federal Trade Commission works with the Food and Drug Administration to monitor misbranding, mislabeling, or misleading claims regarding indoor tanning equipment and products. You may state that indoor tanning is a controlled environment to obtain a cosmetic tan, as opposed to the uncontrolled aspects of natural sunlight.

HOW CAN ONE BE SURE HE/SHE IS TANNING PROPERLY?

All exposure, whether indoors or outside should be gradual and moderate. For the commercial tanning salon operator, it is necessary that each customer's skin type be determined, and that the corresponding recommended exposure schedules be strictly followed. More information on the risks and benefits of UV exposure can be obtained from trade publications and seminars, industry associations, and suppliers of indoor tanning equipment.

Each indoor tanner must bear responsibility for his/her own tanning priorities. It is the responsibility of those in the retail business to provide enough information to customers to enable them to make an informed decision. When in doubt, the equipment operator should exercise prudence, caution and good judgment when giving advice on tanning practices.

WHERE CAN AN INDOOR TANNING SALON OWNER OBTAIN INFORMATION ON RUNNING A BUSINESS BOTH PROFITABLY AND EFFECTIVELY?

Probably the best resources for this information are industry trade associations and various groups which cater to small business such as the local Chamber of Commerce. In addition, some colleges and universities offer classes in basic marketing and salesmanship. Trade magazines and other publications may provide the small businessperson with the demographics in a given geographical area.

This information is essential in developing an effective marketing plan. Finally, the supplier of the indoor tanning equipment should have good suggestions for selling indoor tanning services.

WOLFF SYSTEM

NOTES

NOTES

We hope you have found this booklet informative and useful in understanding indoor tanning; after all, they are your questions. We wish to thank the regulatory and medical communities, as well as salon owners for their assistance in reviewing this information. Our educational goal is to ensure that accurate, factual information regarding the decision to tan indoors is disseminated to the public. Remember, when choosing the controlled environment of indoor tanning, do so responsibly and in moderation.

Sincerely,

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