MedArt® PAS
Pigment analysis system

Pigment measurements and influence on treatment settings for different light based equipments.

The MedArt® PAS electronic pigment measuring system is an additional measurement to determine basis pigmentation (Fitzpatrick skin type index) and sun tanning index (BIX according to Lang).

The below describes how a fast analysis is made with a very compact handheld device. The MedArt® PAS pigment analysis system is an easy yet very useful device in the daily medical praxis.

Push shortly on the tip to activate it. Leave it pressed against the skin for about one second after which the measurement takes place. A two digit figure will be displayed on the small screen on the analyzer.

It is important to maintain a vertical position of the analyzer over the skin to ensure correct measurement.

In order to minimize the risk of faulty measurements it is advisable to do more readings over the same area and to critically evaluate the measurements: Small, pigmented lesions such as freckles, hair or lentigines will give false/positive values. Too low measurements can be due to an under pigmentation in the area.

A measurement – just as a treatment – should only be done on clean skin (without makeup).

The values indicated below cannot be used to determine the risk profile of Fitzpatrick I-III skin types with freshly tanned skin or of persons with other risk factors involving faulty pigmentation.

Measured values	MedArt® FRx	MedArt® FRx Intenz	MedArt® 435 diode laser With cooling	VPL™ (530-950nm)
10 – 18	+	+	+	+
19 – 25	+	+	+	+
26 – 35	-30%	-20%	-10%	-30%
36 - 44	0	-50%	-20% *	0

- + No reduction in treatment parameters
- - Reduce treatment parameters by the indicated percentage
- 0 Treatment is not safe

*) When treating with the MedArt® 435, 810nm diode laser, it is only necessary to reduce the treatment energy by 20% if the hairs are thick and dark.

A suntanned person, Fitzpatrick skin type IV-VI, should only be treated based on a personal evaluation of the risks involved in doing a laser or light based treatment. The reason is the following:

Due to a higher absorption of laser energy in the superficial pigment of suntanned or darker skinned persons the penetration depth of the laser light (wavelengths from 600-950nm) is minimized. Thus, the energy density needed to

thermically denature the hair grown center is highly reduced. This is especially true for weakly pigmented or thin hairs.

There is, of course, still a need for sun protection after a treatment. The more tanned the skin on the time of receiving the treatment, the longer UV radiation should be avoided.

According to the sun tanning index 1 (BIX 1^{o} by Lang) the patient must stay away from the sun for one week after treatment with a hair removal laser. By sun tanning index 2 (BIX 2^{o} by Lang) it is two weeks, by sun tanning index 3 (BIX 3^{o} by Lang), 3 weeks.

BIX™ index simplified according to Dr. Lang

I °	Light tan for the individual skin type
II °	Medium tan for the individual skin type
III °	Maximum tan for the individual skin type
x f m o x	UV –exposure for how long before consulting **(**e**x**tremely) **f**resh / **m**iddle / **o**ld **(**e**x**tremely)
c b d	**c**hronically UV expos., sun**b**urned, **d**rugs (sensitising)
A AB	sun studio (most UV A)/ natural sun (UV A and UV B)

Example: Type III, I° xf cd A

This corresponds to an individual of a Fitzpatrick skin type III with a light tanning of the skin, who has that same day been taking artificial sun, so the final tan is not necessarily the visible one. The patient frequently takes artificial sun or is often exposed to the sun and takes medication or substances that themselves generate a risk of epidermal dyspigmentation.

A scientific paper on the interaction between UV radiation, sun tanning and laser treatment and the physiology on pigmentary changes: „Bräunungsindex – forensische Notwendigkeit einer Dokumentation“ was published in ästhetische Dermatologie 1/2003, mdm-Verlag für medizinische Publikationen / Pvst G 52766 DPAG. An updated version is available from the author.

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