



Impact of High Coverage Make-up Coverage against Visible Light Exposure

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Abstract

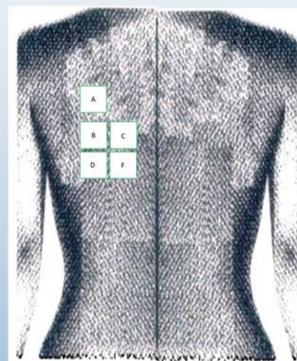
Historically, photo-protection studies have mainly focused on the most energetic part of the electromagnetic spectrum reaching the earth's surface: UVB (280-320 nm) and UVA (320-400 nm). Advances made in skin optics research demonstrate that Visible light (400-700 nm) irradiation can cause skin darkening and contribute to worsening of dyschromia, particularly in individuals with skin phototype III and higher.

Currently, few sunscreens provide protection against visible light. Due to their capabilities in absorbing and reflecting visible light, topical products containing pigments and/or metal oxides (i.e. iron oxide, zinc oxide, and titanium dioxide), which are visibly white in appearance, can provide additional protection against harmful effects of that spectrum.

Here we demonstrate that high coverage pigmented foundation with different concentrations of iron oxide and titanium dioxide, offers visible light photoprotection compared to a benchmark mineral SPF50+ sunscreen.

Study Design

- N=10 Female & male volunteer; ages 18 to 50
- Fitzpatrick skin type IV; ITA° between 10° and 35°
- Investigational area: back
- Product treatment: 15 min before each irradiation
- Irradiation: 4 days of 144 J/cm² Visible light (400-900 nm)
- Evaluations: clinical grading for pigmentation, chromameter & digital imaging



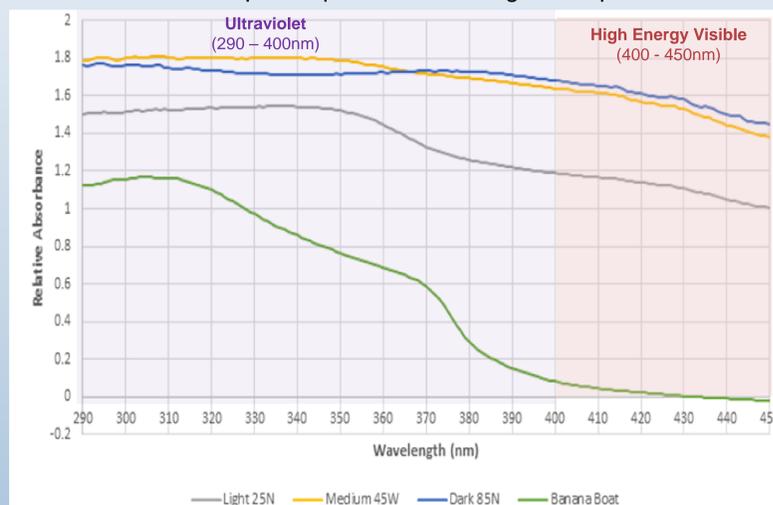
Investigational Products



Investigational Products	ZnO	TiO ₂	FeO
Banana Boat Mineral SPF50+	4.5%	6.5%	0%
DB Flawless Creator (25N) Light	0%	27%	4.85%
DB Flawless Creator (45W) Medium	0%	18%	13.30%
DB Flawless Creator (85N) Dark	0%	0%	27.25%

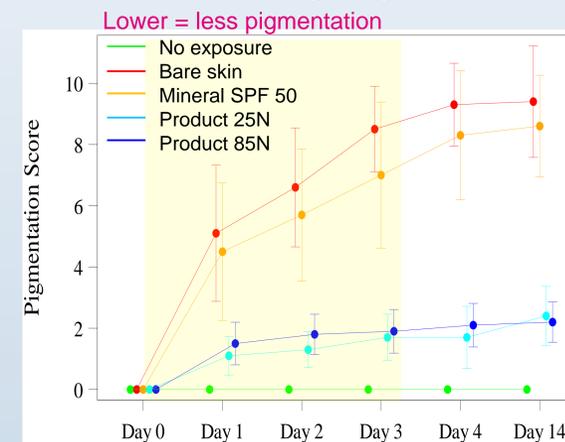
* DB Flawless Creator 45W not evaluated in the clinical study

Absorption Spectra of investigational products

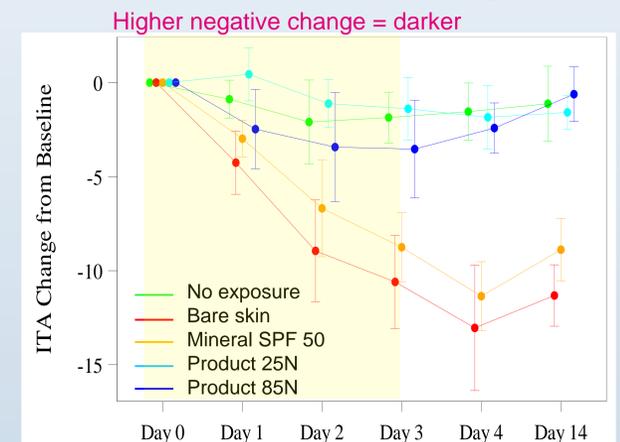


Results

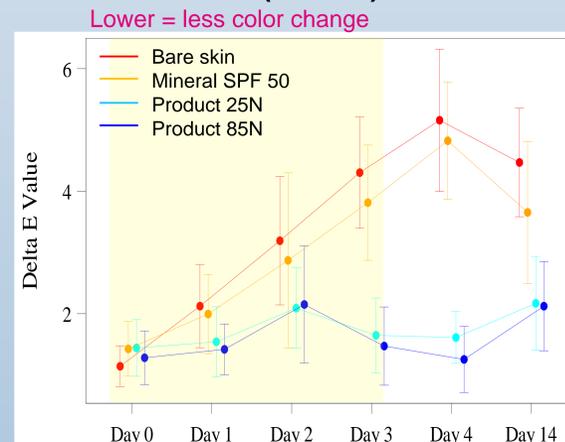
Expert Grading - Pigmentation



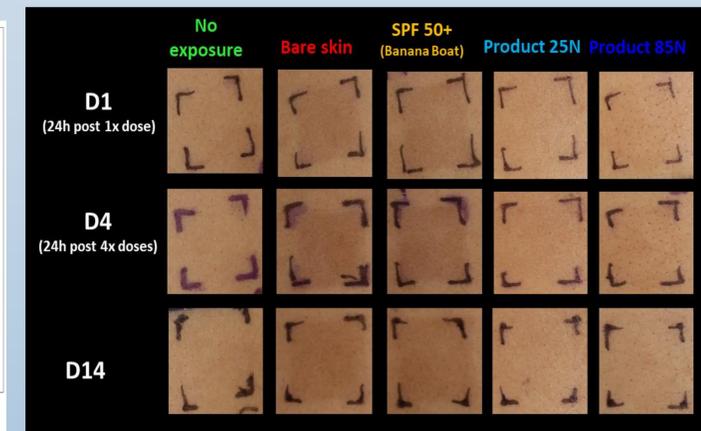
Instrumental – Skin Darkening (ITA°)



Instrumental – Skin Color Change (Delta E)



Clinical Imaging



No exposure = no product, no visible light; bare skin = no product with visible light exposure

Conclusions

Under these visible light (400-900nm) conditions:

- Banana Boat mineral SPF50+ sunscreen (w/ 4.5% ZnO & 6.5% TiO₂) does not provide protection against Visible light, similar to bare skin.
- Dermablend Flawless Creator 25N & 85N provided best protection against Visible light irradiation.
- No clinical nor statistical differences between Dermablend products.

Based on obtained results for tested formulas, Dermablend Flawless Creator™ formulas can protect multiple phototypes against visible light induced pigmentation.