

# NOVEL LOW-LIGHT-LEVEL-BASED DEVICE ROUTINE FOR MANAGING OILY SKIN

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## 1 INTRODUCTION

For some individuals, sebaceous glands can produce too much sebum resulting in oily skin, increased pore size, and shiny appearance.

We proposed here a specific skincare routine to manage oily skin while limiting skin discomfort combining anti-inflammatory LLLBD (Low-Level-Light Based Device) and mattifying formula, Aerogel® 2% .

## 2 MATERIALS AND METHODS

**LLLBD:** GentleWaves® LEDs-based device emitting specifically pulsed light at 590 nm as predominant wavelength and 870 nm as secondary wavelength. Each application consisted of daily exposure of 0.1 J/cm<sup>2</sup>, during 70 s.



Figure 1: Picture of the GentleWaves® Low-Level-Light-Based-Device, its updated version, and their spectrum of emission (cfr. EP2912509B1, EP2861203B1).

**AEROGEL® 2%:** Silica aerogels are ultra-low density solids obtained through supercritical evaporation of a silica hydrogel. It has a double action, on oil and on sweat: exchange surface that maximizes sebum capture, and a surface that splits and sprayed sweat (formula based on aerogel VM2270).

**CLINICAL STUDY DESIGN.** Single-center controlled, randomized open study. 31 adult females, 36-44 years old, with oily skin define as sebum casual level > 125-µg/cm<sup>2</sup> and Sebutage® > 2. Aerogel® 2% mattifying active for skin cream full-face daily, and half-face LLLBD (70 s) for 2 weeks.

**EVALUATION.** We evaluated brightness, pore size, and sebum excretion using clinical and instrumental assessments performed at baseline (D1) and final visit (D12): 10-point scale for brightness (1), Dermascore® clinical grading with proprietary L'Oréal Atlas and on pictures with VISIA 2D for pore size (2), Sebumeter® for Casual Level, Sebutage® for Sebum Excretion Rate (3).

This concept is based on the results of our two earlier studies where we demonstrated that LLLBD has an effect on oily skin parameters. Both studies showed statistically significant sebum, seborrhea and pores size reduction for LLLBD (70 s) vs baseline already after 10 days. In addition, the second study Dermascore® evaluation showed statistical reduction in favor of LLLBD. Clinicians and volunteers assessed good tolerance.

## 4 CONCLUSIONS

Our clinical studies show that the combination of an active compound such as Aerogel® 2% with the short application time LLLBD of only 70 s daily leads to an improvement of oily skin appearance, in terms of brightness and pore size, as soon as 10 days, with a persistent efficacy and with good acceptance.

By bridging the gap between immediate visible effects and the sustainable long-term effects, and reducing the side effects of the classical routine, the combination of Aerogel® 2% and the short application time LLLBD (70 s) represents an opportunity to improve the oily skin appearance in a sustainable way, in a daily and friendly consumer routine that raises consumers' observance. Based on these results, the upgraded version of the GentleWaves® LLLBD devices (Figure 1), using the same technology can be used to facilitate consumers' treatment. This novel LLLBD with short application time of only 70 s can be proposed also for cosmetic scalp disorders improvement, such hair regrowth.

### References:

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## 3 RESULTS & DISCUSSION

1. Brightness was evaluated on a 10-point scale. Significant reduction was observed for LLLBD+Aerogel® 2% vs baseline and Aerogel® 2% alone.



Figure 2 (left): Before treatment and after treatment with LLLBD+Aerogel® 2%. Figure 3 (right): Right & left side treated with : Aerogel® 2%, LLLBD+Aerogel® 2%.

	Treatment	Visit	P-value of Treatment	Mean Change	Mean Change, %	P-value of Mean Change
Skin Brightness	LLLBD+ Aerogel® 2%	T2w	<.001*	-1.00	-18.56	<.001*
		Aerogel® 2% Alone	T2w		-0.23	-4.32

Table 1: Skin brightness Clinical Grading Change from Baseline

2. Pore size was evaluated on an 8-point scale. Significant reduction was found for LLLBD+Aerogel® 2% vs baseline and Aerogel® 2% alone

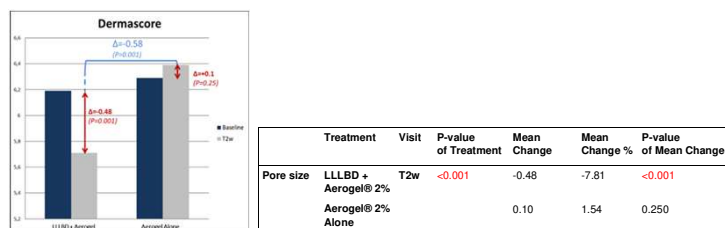


Figure 4: Dermascore® Clinical Grading Change from Baseline ; Table 2: Skin brightness Clinical Grading Change from Baseline

3. Sebutage® measurements showed a statistically significant decrease vs baseline for both groups, and for LLLBD+Aerogel® 2% Vs Aerogel® 2% alone (not significant).

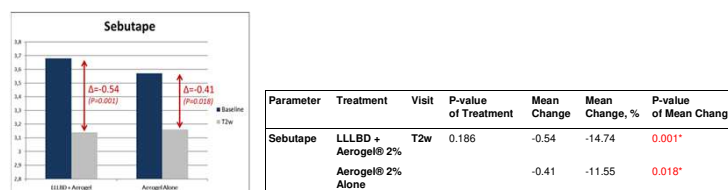


Figure 5: Sebutage® Clinical Grading Change from Baseline; Table 3: Dermascore® Clinical Grading Change from Baseline