Poster ID – **P1020**

Additional Therapeutic Benefits of a Sunscreen with 2% Niacinamide for Dry Skin: A 56-Day Clinical Study in a Brazilian Population

Isabelle Rennó[1], Debora Felix[1], Gabriela Moreira[1], Luciano Milanelo[1], Ana Luisa Teixeira[1], Andressa Peyrot[1], Maria Carolina Semprini[1], Dina Ameen[2], Elimar Gomes[3], Ana Espósito[4]

[1]Kenvue Brands LLC, São José dos Campos, SP, Brazil; [2]Kenvue Brands LLC, Summit, NJ, USA;[3]Beneficência Portuguesa de São Paulo – BP, SP, Brazil; [4]University of Western São Paulo, SP, Brazil

Introduction

- Consumers are increasingly seeking multibenefit products to simplify their skincare routines. In this context, sunscreens with additional cosmetic benefits may encourage consistent daily use to improve adherence to skin cancer prevention. Skin pigmentary disorders impact appearance, leading to emotional distress and decreased quality of life, while dry skin may be exacerbated by UV exposure. Daily sunscreen use helps prevent pigmentation and contributes to hydration balance.
- This was an open-label, single-arm clinical study conducted to evaluate hydration-related outcomes under defined conditions of use **(Figure 1).**

Recruitment Criteria

- Females, 19–45 years old.
- Fitzpatrick II (18%), III (46%), IV (31%), V (4%).
- Ethnicities: White (44%), Brown (47%), and Black (9%).
- Participants with dry skin on the face evaluated by Corneometer (score of maximum 40 a.u. at initial measurement before application of the product).
- Recent and repetitive complaints of discomfort caused by dry skin on the face, such as itching and irritation.
- The study was conducted in accordance with ethical principles for clinical research, and all participants provided informed consent.

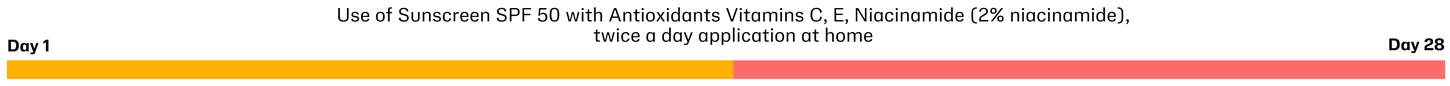
Objectives

The objective of this study was to assess the efficacy of a multifunctional, non-tinted SPF 50 sunscreen in improving skin hydration, barrier integrity, and hyperpigmentation, as well as to evaluate the in vitro percutaneous absorption of niacinamide (NA).

Methods

A multifunctional SPF 50 non-tinted sunscreen containing high molecular weight, high melting point, and extremely polar UV filters combined with 2% niacinamide was evaluated for its ability to improve skin tone uniformity, radiance, and pigmentation over 56 days of regular use.

Figure 1. Study Design



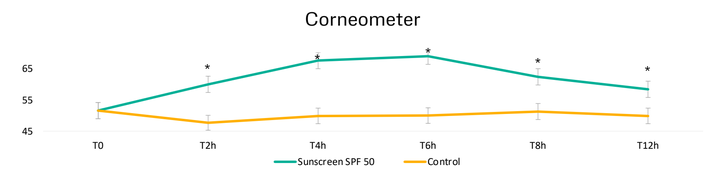
- Tolerability assessment.
- Clinical efficacy assessment: skin radiance, tone uniformity and spots size
- Confirmation of face dry skin eligibility with Corneometer (baseline).
- Tewameter® measurement on face (baseline).
- Corneometer measurents on face for 12-h hydration kinetics.
- Capture of facial images with Colorface® equipment.

- Tolerability assessment.
- Final Tewameter® measurement.
- Final Corneometer® measurement.
- In vitro permeation test (IVPT)
- Capture of facial images with Colorface equipment.
- Perceived Efficacy Questionnaire.

Over 90% of participants demonstrated clinical improvement in facial hydration after 28 days of use of SPF 50 sunscreen with vitamins C, E, niacinamide

Results

Figure 2. Short Term – Hydration on the Face After 12 h

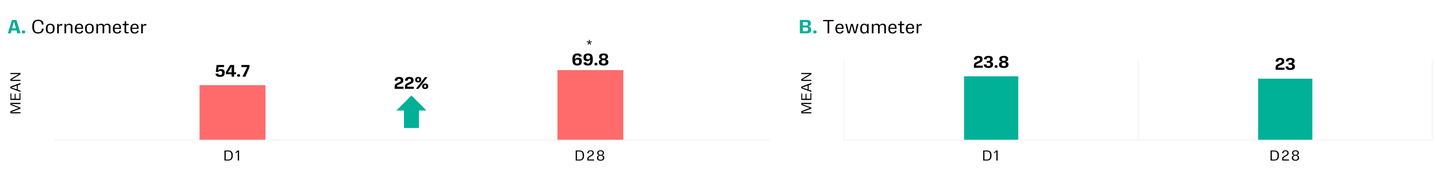


* p<0.001.

Conditions of use: 12 h supervised at the clinical study site. Product was applied on half of the face, on malar area. N=34

- Statistically significant increase in skin hydration was observed at all timepoints (**Figure 2**).
- After 12h, there was **16% increase** in skin hydration.

Figure 3. Long Term - Hydration on the Face and Skin Barrier After 28 Days



* p<0.001

p=0.197

Conditions of use: twice a day application at home. N=31. Data are presented as mean Corneometer values, with percentage change relative to baseline (green arrow).

- A **statistically significant increase in skin hydration** of 22% was observed after 28 days of Facial Sunscreen in relation to the initial time-point D1 (**Figure 3A**), with **93.5% of participants** showing clinical improvement in facial hydration (p<0.05).
- No statistically significant change on TEWL (transepidermal water loss) measurement was observed after 28 days of Facial Sunscreen use (**Figure 3B**), **indicating maintenance of skin barrier integrity.**

Visible and perceived hydration efficacy after 28 days of continuous use

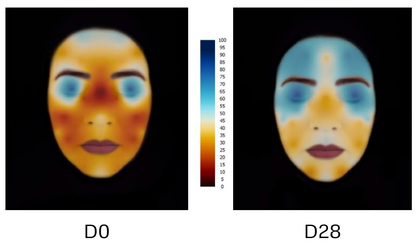
Results

Hydration Mapping

- This visual representation shows hydration results by mapping individual measurement points (Corneometry) to defined color values **(Figure 4)**. The blue color represents that the skin is more hydrated and the red color represents dryer skin.
- To create the map, 30 corneometry results were associated to an average facial image derived from the facial photographs taken of the study participants, through Colorface system.

Figure 4. Before and After 28 Days of Continuous Use at Home

The color scale represents corneometry/hydration results from 0 to 100. Hydration mapping was used as a visual representation of corneometric data distribution across the face.



D0 D28

Table 1. Perceived Efficacy Questionnaire (N= 32)

Question	% of Participants Who Agree
It deeply moisturized my skin	90.6%
It made my skin more hydrated and radiant	87.5%
It made my skin more nourished	94%
It made my skin smoother	100%
Improved the texture of my skin	87%

Tolerability Evaluation

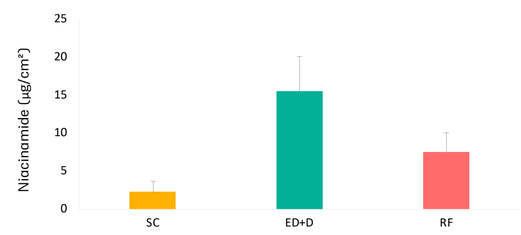
During the study, none of the participants presented any skin clinical signs or discomfort sensations related to the product; therefore, the SPF 50 sunscreen was considered safe under the conditions of use.

In Vitro permeation test results

IVPT results for a facial sunscreen containing 2% niacinamide using human cadaver skin showed the following:

Figure 5. Cumulative Amount of Niacinamide Permeated*

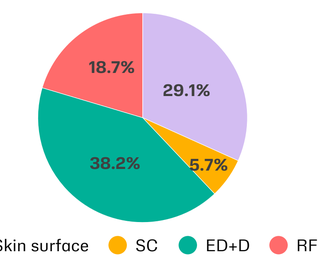
- NA permeates through the skin.
- NA amount per cm² in the viable epidermis and dermal layer was significantly higher than that in the SC and RF (P< 0.05).



* Data represent the average of n=6± SD replicates

Figure 6. % Niacinamide of Total Dose Applied*

- In total an average of 43.9% ± 12.4 of the applied dose was detected in skin layers, of which about 38% penetrated deeper beyond the SC.



* Data represents the average of n=6 replicates

NA: niacinamide; SC: stratum corneum; ED: epidermal layer; D: dermal layers; RF: receptor fluid (RF)

Clinical efficacy results: improvement in skin radiance, tone uniformity and spots size

Clinical Efficacy Results

- Clinical evaluation demonstrated significant improvements in skin radiance and tone uniformity. These improvements were observed as early as day 28 and continued to enhance through day 56 (Figures 7 and 8A).
- Image analysis, conducted using the Colorface® system, showed a significant decrease in spot size. The Total Surface Parameter, which represents the cumulative area of dark pixels within selected facial spots, showed a notable reduction. This decrease indicates a visible improvement in spot size and reduced visibility (Figure 8B).
- No subjects experienced any discomfort or adverse sensations and no clinical signs of skin irritation were observed related to the product. According to the topical safety evaluation, the product was considered safe for use under the specified conditions.

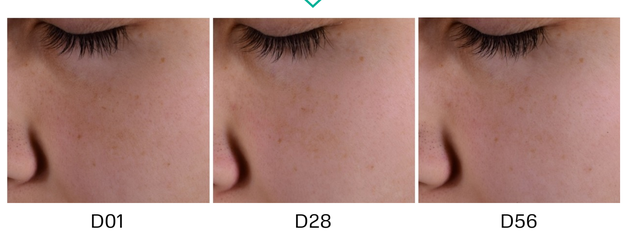
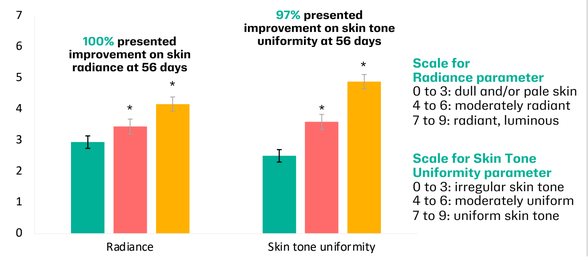
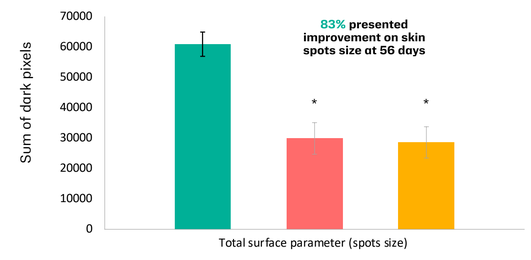


Figure 7. Colorface® image for the best case Subject 116, skin tone uniformity parameter

A) Clinical Assessments



B) Image Analysis



Day 1 Day 28 Day 56

Figure 8. A) Clinical assessment results. Mean and standard error per time-point and attribute. **B)** Image analysis results by Colorface®. *p<0,05 (ANOVA – LSD), comparison with Day 1.

Conclusions

- The multifunctional sunscreen demonstrated benefits beyond primary photoprotection by significantly improving facial skin tone homogeneity, reducing spot size, and enhancing skin hydration. The formulation promoted a short term and sustained hydration from the first application, lasting up to 12 hours, preserved barrier integrity, and delivered clinically perceived benefits after 28 days of continuous use.
- In addition to its essential role in skin cancer prevention, this study underscores the relevance of sunscreens that deliver multiple benefits by combining advanced photoprotection with effective skin hydration.
- Furthermore, niacinamide skin permeation studies showed significantly higher concentration in the skin layers than in the receptor fluid after 24 hours, indicating effective delivery and localization of the active ingredient within the skin, which is consistent with literature and may help support the clinical benefits observed in the study.

Disclosures: *This work was sponsored by Kenvue Brands LLC*

Author Disclosures: *All authors were employees of their affiliated institutions at the time of the research.*

This data was already presented at the American Academy of Dermatology (AAD), March 27–31, 2026, Denver, CO, USA
European Academy of Dermatology and Venerology (EADV), September 30– October 3, 2026, Vienna, Austria