

# The benefits of nicotinamide in sunscreens

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## Everyone can enjoy the sun with the UK's No.1 prescribed sunscreen<sup>1</sup>

- Nicotinamide, also known as niacinamide, is the physiologically active form of niacin (*Vitamin B3*) and has multiple benefits when applied topically.
- The use of 3% nicotinamide in high-protection sunscreens provides additional sun care and skin care benefits beyond SPF.<sup>2,3,4</sup>



## Introduction

- Malignant melanoma is the 5th most common cancer in the UK (2011), accounting for 4% of all new cases. In 2011, there were 13,348 new cases of malignant melanoma in the UK: 6,495 (49%) in men: and 6,853 (51%) in women,<sup>5</sup> with a disproportionately higher rate among younger people.<sup>6</sup> UK deaths from this type of cancer are now overtaking Australia, which has the highest incidence in the world.<sup>7</sup>
- At-risk groups not only benefit from high-factor sunscreens (SPF50+), but also from sunscreens containing 3% nicotinamide, which offers further benefits beyond sun protection.

## What is nicotinamide?

- Nicotinamide, or niacinamide, is the physiologically active form of niacin (*Vitamin B3*).<sup>8</sup>
- In the body, nicotinamide is a precursor of nicotinamide adenine dinucleotide (NAD) and nicotinamide adenine dinucleotide phosphate (NADP).<sup>9,9</sup> These coenzymes are involved in biological oxidation reactions in the cells of the body<sup>10</sup> and play a critical role in cellular energy production, as well as in DNA synthesis and repair.<sup>11</sup>
- Severe deficiencies in nicotinamide lead to pellagra, with symptoms including dermatitis, diarrhoea and dementia.<sup>8,9,10,11</sup>

## The benefits of topical nicotinamide in sunscreens

While nicotinamide is used clinically in the treatment of a variety of inflammatory skin disorders such as bullous pemphigoid, acne and rosacea,<sup>12</sup> the topical application of nicotinamide in sunscreens has many benefits:

- Assists with the maintenance of the normal skin barrier function
- Defends against the factors contributing to sensitive skin
- Improves epidermal barrier function of healthy skin
- Effectively moisturises dry skin
- Improves the appearance of skin tone and texture
- Inhibits actinic keratosis
- Inhibits photo immunosuppression



## Safety of topical nicotinamide

- Nicotinamide has an excellent safety and tolerance profile. It is non-toxic; not a skin irritant, skin sensitiser or photosensitiser; and is non-comedogenic.<sup>13</sup>
- Nicotinamide is not subject to oxidation or photolysis, and is well tolerated topically.<sup>8</sup> As such, nicotinamide is very stable, making it suitable for use in sunscreens.

## Sunscreens containing 3% nicotinamide

The delivery of nicotinamide into the skin is independent of its vehicle.<sup>8</sup> As such, the effectiveness of nicotinamide in topical products is not limited by the formulation and is beneficial in sunscreen products.

Studies show that nicotinamide is effective and beneficial topically at concentrations ranging from 0.25% to 0.5%.

- At 0.25%, nicotinamide inhibits photoimmunosuppression;
- At 1%, nicotinamide inhibits actinic keratosis;
- At 2%, nicotinamide reduces sensitive skin symptoms, sebum excretion rates and inflammation, lightens the skin, improves epidermal barrier function and moisturises dry skin by increasing skin ceramide levels;
- At 5%, nicotinamide inhibits hyperpigmentation. While the majority of skin benefits are seen with 2% nicotinamide, the use of 3% nicotinamide would provide some benefits for hyperpigmentation. As such, very high protection sunscreens using 3% nicotinamide not only offer sun protection benefits, but they also offer additional everyday skin care benefits.
- All SunSense sunscreens offer high to very high, broad spectrum protection and comply with the new Australian sunscreen standard.
- With the exception of SunSense Lip Balm and SunSense Ultra, all SunSense sunscreens contain 3% nicotinamide for additional skin benefits for all skin types.
- SunSense sunscreens are fragrance free, dermatologically tested and suitable for sensitive skin. In addition, SunSense Sensitive, Sensitive Mattè and Kids are Paediatrician tested.



## Conclusions

- All ages and skin types can benefit from using the highest factor sunscreens (SPF50+) in the world<sup>14</sup>
- Further to this, the use of ingredients with an excellent safety profile such as nicotinamide and the exclusion of non-essential ingredients, provide additional sun care and skin care benefits.

## SunSense is the UK's No.1 prescribed sunscreen!



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