

## TECHNICAL DATA SHEET

**Product Name:** Nano Zinc Oxide < 100 nm

**INCI Name:** Zinc Oxide Nano

**CAS:** 1314-13-2

**Chemical Classification:** Inorganic substance

**Functional Category:** Sunscreen agent, skin protectant, cosmetic colorant

**IUPAC Name:** Oxozinc

**Description:** Nano zinc oxide is a form of zinc oxide with particles smaller than 100 nanometers. Due to their very small size, nano particles allow zinc oxide to be almost invisible when applied to the skin, thereby avoiding the white cast characteristic of the non-nano version. As a physical filter, nano zinc oxide reflects and scatters UVB and UVA rays, effectively protecting the skin from damage caused by sun exposure. Its main advantage is that it is almost transparent on the skin, which makes it a popular choice for day creams and lotions with UV protection. The nano particles are stable in creams, enabling even distribution and long-lasting performance of the product. Because of the small particle size, nano zinc oxide has been the subject of numerous studies and safety debates, especially regarding the potential for skin absorption and entry into the bloodstream. Most studies have shown that the nano particles remain on the surface of the skin and do not penetrate into deeper layers, especially when applied to healthy, intact skin, which reduces concerns about possible health risks. In addition to sun protection, nano zinc oxide also has anti-inflammatory properties, making it useful for soothing sensitive or irritated skin. It provides high UV protection, and its particles are stable and light-resistant, which contributes to product durability. This ingredient is used in various cosmetic formulations, including sunscreens, lotions, powders, and decorative cosmetics, because it enables skin protection without visible residue. It appears as a white powder. Crystal structure: hexagonal (wurtzite) or cubic (zincite). It is insoluble in water and alcohol, but it can be dispersed in water and oils. It has a high degree of purity and does not contain other metals. It is highly stable under the influence of light and does not undergo color changes; pH value: 7.1–7.5.

**Disclaimer:** The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.

## TECHNICAL DATA SHEET

### Benefits:

- After application, it does not leave a white cast on the skin.
- It effectively absorbs UVA and UVB radiation, providing sun protection and reducing the risk of skin damage.
- It is photostable, meaning that it retains its protective properties even under strong UV exposure.
- It is gentle on the skin, making it suitable for people with sensitive or irritated skin.
- Smaller particles allow better distribution on the skin, without clogging pores.
- It is easy to incorporate into various cosmetic formulations without affecting the texture or appearance of the product.
- Regulatory authorities worldwide consider it safe for use in permitted concentrations.

**Directions for Use:** Zinc oxide, together with titanium dioxide, is the best-known inorganic UV filter and one of the most commonly used ingredients in sun care products. This mineral UV filter provides broad-spectrum UVA and UVB protection by reflecting and scattering UV rays. In the EU, zinc oxide is approved as a UV filter and is listed in Annex VI of the EU Cosmetic Products Regulation, where its use in formulations is permitted in concentrations from 5% to 25%. In the USA, the maximum permitted concentration is also 25%, while in Japan there are no restrictions regarding its concentration. Zinc oxide can be combined with other UV filters and sun protection components, including various pigments, in order to achieve optimal protection and an aesthetically acceptable appearance of the finished product. In addition to protecting against UV radiation, zinc oxide also has soothing effects on the skin, which makes it suitable for people with irritated and sensitive skin. Its whitening effect is used in makeup products such as powders and concealers. Zinc oxide is often present in baby powders, face powders, and other cosmetic products because of its ability to absorb excess oil and soothe the skin. In addition, it has mild antibacterial properties that may help in the treatment of acne and other skin concerns, and it is also used in creams and ointments for wound healing. Due to its many beneficial properties, zinc oxide is a key ingredient in a wide range of cosmetic products intended for the protection and care of the skin.

**Disclaimer:** The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.

## TECHNICAL DATA SHEET

**Animal Testing:** In accordance with current European regulations (Regulation (EC) No. 1223/2009 on cosmetic products), this substance has not been tested on animals. The safety assessment of the raw material is based on available toxicological data, scientific literature, and validated alternative testing methods (in vitro and in silico). In silico is a term used for testing and assessment methods performed using computer models and simulations, rather than in a laboratory on living organisms (in vivo) or on cell cultures (in vitro). This note confirms compliance with the ban on animal testing and serves solely for informational purposes regarding the further use of the raw material in cosmetic formulations.

**GMO:** Not GMO

**Vegan:** Does not contain components of animal origin

---

**Disclaimer:** The details provided here are specific to the identified material and may not remain accurate if that material is combined with other substances or used in different processes. The information presented is, to the best of the company's knowledge, considered precise and trustworthy as of the date mentioned. However, the company does not make any explicit or implied assurance, guarantee, or claim regarding the information's precision, trustworthiness, or comprehensiveness, and will not be held accountable for any losses, damages, or costs, whether direct or indirect, that arise from its use. Users are encouraged to independently verify the appropriateness and thoroughness of this information for their specific purposes.