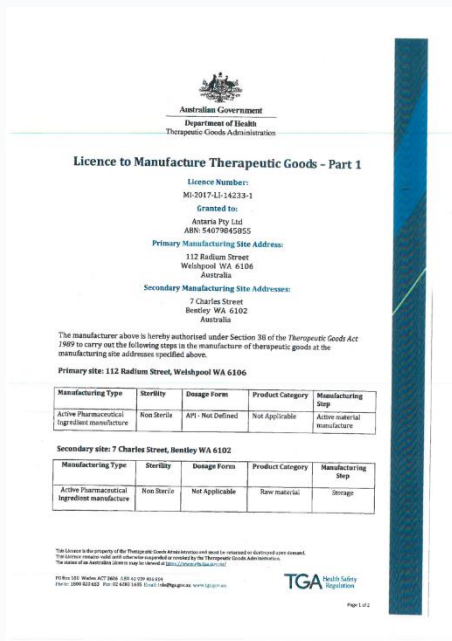




# ZinClear-IM®50 JJ Zinc Oxide Dispersion

JJ oil is natural and has skin moisturising, antibacterial, antioxidant and wound healing properties.

ZinClear-IM®50 JJ is Non-Comedogenic and Hypoallergenic.



## Major Brands using ZinClear-IM®50 JJ



Supergoop!



COOLA

## ZinClear-IM® 50JJ

ZinClear-IM® 50JJ is 50 wt% pre-dispersed Zinc Oxide in 'Jojoba Oil' and facilitates the formulation of mineral sunscreens and other SPF related products. It is also NPA and COSMOS certified.

This dispersion can be incorporated as the main UV filter into primary sunscreens to achieve high target SPF; alternatively, it can also be used in other SPF related products such as lip balms and moisturisers.

## ZinClear-IM® 50JJ IS ORGANIC

(cas 1314-13-2)

It is most commonly used as a skin protectant, helping to reduce the harmful effects of external factors on the skin as both a UV absorber and UV filter. It can also be found in cosmetics and baby lotions including foundation and concealers. It is certified organic. [1]

[1]

<https://incibeauty.com/en/ingredients/15305-zinc-oxide>

## BENEFITS

Antaria has developed ZinClear-IM®50JJ to provide broad spectrum UV protection with exceptional transparency. This product has been formulated for the smooth appearance of skincare products without leaving the skin with a 'white cast'.

## APPLICATIONS

ZinClear-IM®50JJ can be used in a variety of cosmetic applications including:

- Natural Sunscreens
- Cosmetics
- Skincare
- Mineral only sunscreens
- Low irritants or sensitive skin sunscreens
- Lip balms
- Colour cosmetics

## CHEMICAL COMPOSITION

INCI Name	CAS No.
Zinc Oxide	1314-13-2
Simmondsia Chinensis (Jojoba) Seed Oil	61789-91-1
Polyhydroxystearic Acid	27924-99-8
Glyceryl Isostearate	66085-00-5

## RANGE OF ABSORPTION

ZinClear-IM®50JJ is designed to provide exceptional UVB (SPF- 280nm to 320nm) and UVA (Broad Spectrum – 320nm to 400nm) protection while minimizing reflection in the visible spectra (400nm+) which causes the 'white cast' on the skin.

ZinClear-IM® 50JJ has a broad absorption profile and can absorb 50% of UVB rays and Broad Spectrum 370nm UVA rays, while being photostable in formulation. It can also be used in conjunction with other UV filters to produce high SPF sunscreens.

## ZINCLEAR NON-NANO POWDER DESIGNED TO BE TINTED

In conjunction with Zinc Oxide

- Iron Oxides enhance protection against skin damage – new results demonstrate HEV blocking powder in specialty skin care products formulated with iron oxides (Carlsbad, CA. 2020) [ColoreScience](#).
- Iron oxides in novel skin care formulations attenuate blue light for enhanced protection against skin damage (Bernstein EF, et al. 2021) [J Cosmet Dermatol](#)
- Iron oxides provide protection against all visible light, including blue light.

- Darker skin tones are more susceptible to immediate pigment darkening when exposed to visible light.
- Lest you think this is a new notion, check out this reference to a 1991 paper from the JAMA dermatology; Efficiency of Opaque Photoprotective Agents in Visible Light Range ([Kaye, ET, et al., 1991](#))

## STORAGE AND HANDLING

Good ventilation is recommended when working with a large amount. Store in tightly closed containers in a dry area. Consult the SDS for additional handling or safety information.

## SHELF LIFE

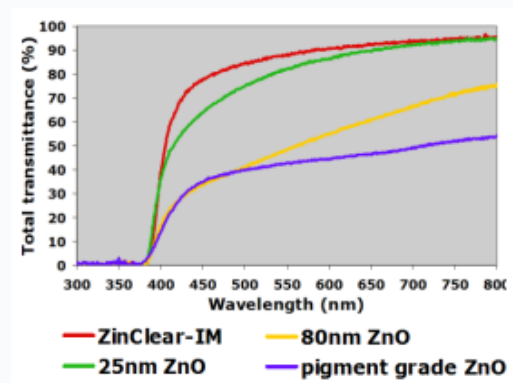
ZinClear-IM® 50JJ has a shelf life stability of 24 months when stored under standard conditions (above 5°C and below 30°C). Re-testing after 2 years is required to extend the shelf life to 3 years from the manufacturing date.

## ZinClear-IM® 50JJ: Technical Specifications & Properties

Appearance	Pale yellow to yellow green
Odor	Mild Odor
ZnO Assay %	48.0 – 52.0% (Ion Chromatographic Method)
Secondary Particle Size (D[4, 3])	≥ 1.00 µm (Laser Light Scattering)
Total Transmittance (550nm)	≥ 90.0% (UV-Vis, Internal Method)

Zinc oxide contained in ZinClear-IM® 50JJ is tested prior to dispersion and complies with the current USP Monograph for zinc oxide

ZinClear-IM dispersions are supplied in the form of a viscous, free flowing liquid and when applied to the skin at high loadings it will still remain transparent. A comparison of ZinClear-IM transparency to competitor ZNO products is shown in the graph below



## EXPOSURE ASSESSMENT AND HEALTH CONSIDERATIONS

Most estimates of human toxicity are based on animal studies. Toxicity is an inbuilt property of a material, similar to its physical constants. It is the ability of a chemical substance to cause an undesirable effect in a biological system. Zinc oxide itself is considered non-toxic, however, fumes generated from melting and oxidizing can be [2,3]. The European Chemicals Agency has given an LD50 value for zinc oxide oral ingestion is 2000mg/Kg [4]. The recommended dietary allowance for adult males is 11mg/day and 8mg/day for females, however, the maximum adult daily intake unlikely to cause harm is 40mg/day. The body can only uptake zinc from the diet, source include red meats, some seafood and whole grains. [5]

## REFERENCES

[2] Jillian Levy, C., 2022. *Zinc Oxide Benefits for Protecting Your Skin from the Sun + More!*. [Online]

Available at: <https://draxe.com/health/zinc-oxide-benefits/>

[3] Reshma VG, M. P., 2018. *Hidden Toxicity of Zinc Oxide Nanoparticles*. [Online]

Available at: <https://atlasofscience.org/hidden-toxicity-of-zinc-oxide-nanoparticles/>

[4] European Chemicals Agency, Unknown. *Zinc Oxide Toxicological Information*. [Online]

Available at: <https://echa.europa.eu/registration-dossier/-/registered-dossier/16139/7/3/1#:~:text=%20With%20LD50%20values%20consistently%20exceeding%202%2C000%20mg%2Fkg%20bw%2C,shown%20to%20be%20of%20low%20acute%20inhalation%20toxicity.>

[5] Micronutrients, I. o. M. (. P. o., 2001. *Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. Washington (DC): National Academies Press (US).

## ZINC DISPERSION IS SAFE

### UVA/UVB/UVC & Blue Light Broad Spectrum

- “Of the available sunscreens, only zinc oxide provides effective protection across the UV band range of 240nm to 300nm, covering UVC (240 to 280nm), UVB (280-320nm), UVA 2 (320 To 340nm) and UVA1 (340 to 400nm).”
- “UVA rays account for 95% of our sun exposure. They cause skin aging and contribute to skin cancer.”
- “The risk for skin cancer doubles in people who have had five or more sunburns.”
- UVA rays penetrate deeply into the skin layers, damaging collagen and cells which leads to wrinkling, hyperpigmentation and loss of elasticity.”

### Zinc oxide safety

- “A new study led by two Australian universities has found evidence that

zinc oxide nanoparticles used in sunscreen does not cause cellular toxicity even after repeated applications.”

- “The levels in blood were very small,” says McCall, a research consultant on nanoSafety at CSIRO. “After applications over five days, the levels of the tracer zinc in the blood were only one thousandth of what is the naturally occurring total zinc levels in the blood.”

### Zinc Anti-Bacterial & Wound Healing

- “Zinc has been used during the regime of Pharaohs, and historical records show that zinc oxide was used in many ointments for the treatment of injuries and oils even in 200BC.”

### Hypoallergenic

- “A study in Denmark, 56.7% of women (3,288,60 million) and 33.6% of men (1,948,800) in Denmark have experienced and adverse effect after using cosmetics at least once.”
- “In a study in which a 25% zinc oxide patch (2.9mg/cm<sup>2</sup>) was placed on human skin for 48 hours, there was no evidence of dermal irritation.”

## REGULATORY STATUS

Region	Approval Limit
USA	25%
Canada	25%
EU Union	25%
Japan	No Limit
Korea	25%
Australia/ New Zealand	No Limit
ASEAN	25%
China	25%
South Africa	25%

