

UV PROTECTION
Zinc Oxide Neutral
104702



Zinc Oxide Neutral No. 104702

Microfine Pigment for Effective UVA and UVB Protection

BENEFITS

- Zinc Oxide Neutral is a pigment of fine particle size
- It is nearly transparent to visible light
- No unacceptable whitening of the skin, even when used in high concentrations or after repeated application of cosmetic products containing Zinc Oxide Neutral
- Due to a special manufacturing process Zinc Oxide Neutral is pH neutral and does not shift the pH of cosmetic preparations into the alkaline range
- Zinc Oxide Neutral protects against UV-B and UV-A radiation up to wavelengths of 380 nm
- Easily dispersible in the oil and water phase of emulsions
- Zinc Oxide Neutral has an extremely low content of trace metals, e.g. Pb and As
- Approved to be used up to 25% in the USA, provisionally permitted in Europe
- USP conform

PRODUCT DESCRIPTION

European Patent: 0603627
US Patent: 5527519
CAS No.: 1314-13-2
EINECS: 215-222-5
Molecular Weight: 81.4 g/mol
INCI name: Zinc Oxide



GENERAL DESCRIPTION

Appearance / Condition at 20°C:	white to yellowish powder
Odor:	practically odorless
Pharmacopoeia:	conforms to USP
Primary particle size (nm): (interactive measuring with image analyzing system)	on average 41
Particle size of agglomerates (µm): (Malvern Mastersizer)	on average 2 90% < 5
Specific Surface Area (BET, m ² /g):	30 - 70

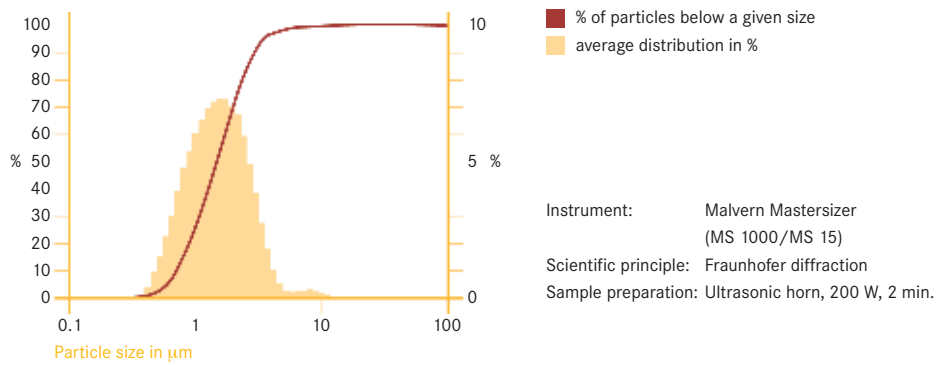
ANALYTICAL DATA

ZnO Assay %:	min. 95.0
MgO Assay %:	max. 0.7
SO ₄ ²⁻ Assay %:	max. 2.0
Loss on ignition %:	max. 2.0
pH-value (DIN ISO 787, part 9):	max. 7.5
Shelf life and storage conditions:	36 months in the original, closed container (protected from sunlight), dry, at 5 – 25°C.

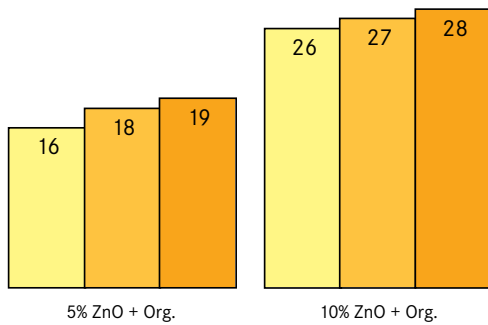
IMPORTANT ADVICES FOR FORMULATIONS

- Processing with Zinc Oxide Neutral is simple. It is easily dispersible in the oil and water phases of emulsions. A high energy mixer or, e.g. colloid mill is recommended
- The use of Carbomers to thicken Zinc Oxide containing emulsions is not recommended due to formation of Zinc Acrylates which reduce the gelling properties of Carbomers
- With thickening agents such as Bentone Gel, Veegum, Cellulose types, Xanthan Gum and its derivatives very stable emulsions can be formulated
- The combination of Neo Heliopan® 357 and Zinc Oxide can interact to form a complex which may precipitate out of finished products
- Zinc Oxide and Titanium Dioxide together in a formulation will coalesce resulting in agglomeration if the pH is between the Isoelectric Points of both materials

ZINK OXIDE NEUTRAL
PARTICLE SIZE DISTRIBUTION (VOLUME DISTRIBUTION)



IN-VIVO SPF-DETERMINATION AFTER 27 MONTHS STORAGE



Conclusion:
When manufactured effectively microfine zinc oxide does not agglomerate and does not lose performance with time.

In-Vivo SPF ■ Sept. '93 ■ Dec. '95 ■ Dec. '95 (Fresh)

PATENT SITUATION

We kindly request that attention is paid to the following patents:
EP0585239 B, US5587148 and patent application JP T206-509321.
When contemplating the use of Zinc Oxide Neutral in combination with other UV absorbers, existing patents or patent applications should be considered.

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