

alusion[®]

a natural soft focus



ANTARIA'S UNIQUE TECHNOLOGY
CONTROLS CRYSTAL GROWTH
PROVIDING A UNIFORM PLATELET
MORPHOLOGY GIVING SUPERIOR SLIP,
ADHESION, AND TRANSPARENCY.

THIS HIGH PURITY GRADE OF PLATELET
ALUMINA POWDER IS SPECIFICALLY
DESIGNED FOR SOFT FOCUS EFFECTS
WITH SUPERIOR COSMETIC FEEL AND A
LUMINESCENT FINISH.

ALUSION® BENEFITS

Slip and feel never seen before in alumina
SUPERIOR SOFT FOCUS

- A combination of strong diffuse scattering with high specular transmittance giving a more natural looking soft focus effect

TRANSLUCENCY

(platelets lie flat allowing more light through)

- More natural skin tone
- Brighter pigment colours

STRONG ADHESION

- Platy morphology with clean surfaces stay on longer

LONG HISTORY OF USE

- Alumina already approved for use in foods and drugs by FDA, Alusion is simply a morphology enhanced alumina

APPLICATIONS

Alusion® can be used in a variety of cosmetic applications. Common uses include:

- Sunscreens
- Lip and eye pencils
- Eye shadows
- Face Powders / Blush
- Foundations and concealers
- Lipstick
- Skin Care
- Bath and Body Products
- Beauty Products
- Nail enamels
- Antacid to relieve heartburn, sour stomach and acid indigestion
- Acne treatment
- Abrasive medium for microdermabrasion
- Opacifier
- Drying agent
- Viscosity controlling agent
- Colour additive (FDA exemption from certification)

CHEMICAL COMPOSITION

INCI Name	CAS No.
Alumina	1344-28-1

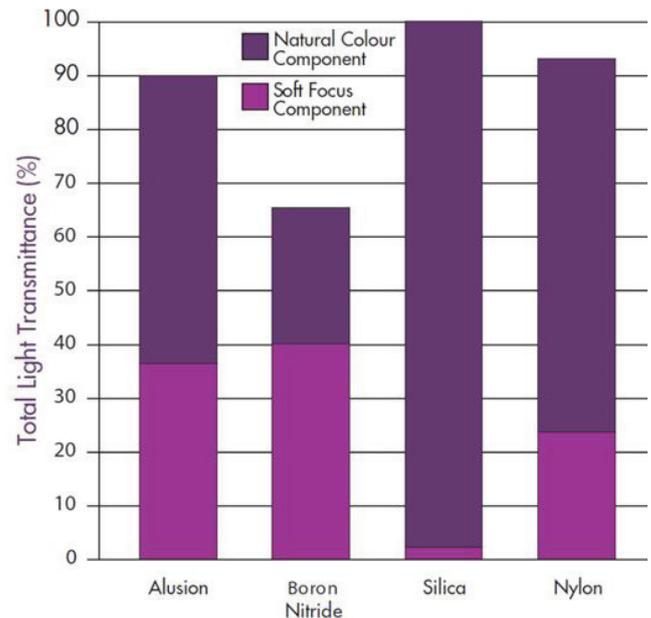
STRONG ADHESION

Using multiple substrates and testing methods on average Alusion® adhered:

- 19% more than Boron Nitride
- 29% more than Talc
- 44% more than Nylon
- 64% more than Silica

Soft Focus Effect and Alusion®

As can be seen by the transmittance measurements, Alusion® has superior combination of diffuse and total transmittance giving a more natural looking soft focus effect.



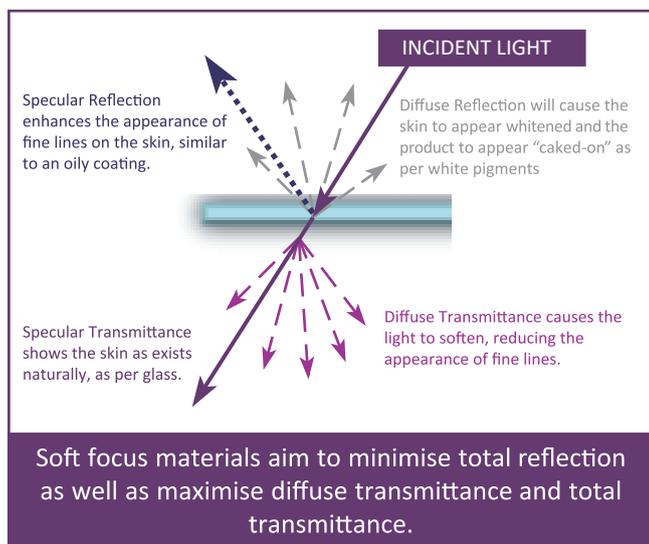
FORMULATION

Typical ranges of Alusion® Powder used in cosmetic formulations:

- Face and body powder 2-10%
- Eye Shadow/blushes 2-10%
- Lipstick 1-10%
- Lip and eye pencils 2-55%
- Concealers/foundations 1-5%
- Nail enamels 1-2%
- Skin care lotions/creams 2-10%
- Sunscreens 2-10%

SOFT FOCUS PROPERTIES

Soft focus cosmetics aim to reduce the appearance of fine lines by ensuring that light is highly diffused. Fine lines are hidden, whilst remaining highly transparent and hence showing natural skin tones.



Light can interact with a material in a number of ways as shown. Soft focus materials reduce the reflected components of light, which show lines and whiten the skin, and increase the diffuse component of transmitted light softening fine lines. Alusion® enhances the diffusion of light whilst remaining highly transparent, giving a superior more natural look.

STORAGE & HANDLING

Good ventilation is advised when handling the powder. Store in a cool, dry place. Consult the SDS for additional handling or safety information.

SHELF LIFE

Alusion® has a shelf-life stability of 5 years when stored under standard conditions (above 5°C and below 30°C).

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ALUSION®: TECHNICAL SPECIFICATION & PROPERTIES

Crystal	Hexagonal (XRD)
Appearance	White powder (Visual)
Whiteness Index	> 88.0 (CIE Index – UV Vis)
Odor	None
Loss on Drying	< 0.5 % (3 hr at 160°C)
pH Value	5.0 – 8.0 (ISO 787-9)
Mean Particle Size	6.0 – 10.5 (Laster Light Scattering)
Al ₂ O ₃ (%)	>99.5 %
Cd (ppm)	<1
As (ppm)	<1
Pb (ppm)	<8
Hg (ppm)	<1
Surface Area (m ² /g)	4-7.5
Tap Density (g/cm ³)	0.5-0.7
Oil Absorption	50g/100g
Coefficient of Friction	0.25-0.35
Purity	Meets FDA specifications for heavy metals impurities (Pb, As, Hg) in Food and drug Colour Additives

Synonyms: Aluminum Oxide, Alumina, α-Alumina, Corundum

*Actual Properties may vary. Numbers represent typical data and will vary within ranges established for a particular grade.

ALUMINIUM OXIDE

Aluminium is the third most common element in the earth's crust after oxygen and silicon. It is present in soils and clays, minerals and rocks, and even in water and food. Therefore, human exposure is common and unavoidable. Aluminum exists in many forms, however the naturally occurring aluminium oxide (Al_2O_3) is a highly inert material and resistant to most corrosive environments, including the highly dynamic environment of the human body. Because of its electrochemical properties, the positively charged aluminium ions form very tight chemical bonds with oxygen so that dissociation is minimal in the pH neutral, aqueous environment and therefore extremely insoluble. As most living organisms function at or about such pH levels, aluminium oxide would present minimal potential for cellular or subcellular interactions and is thus relatively inaccessible to biological interactions.[1]

ECONOMIC USES

Aluminum oxide has found extensive usage in refractory applications, steel production, wear-resistant ceramic parts, paint additives, chromatography, integrated circuits, paper coatings, pigments and reinforced fibers for polymer- and metal-based composites. For decades it has been used in drugs, cosmetics, foods, biomaterials and bioceramics.

Aluminium oxide is listed in the British Pharmacopeia as dried Aluminium Hydroxide (Hydrated Aluminium Oxide) which contains 47 – 60% of Al_2O_3 . [2]
The U.S. Food and Drug Administration

(FDA) has listed Alumina (dried aluminium hydroxide) with not less than 50% Al_2O_3 as a color additive that is exempt from certification.[3]

Following are the uses of aluminium oxide in drugs, cosmetics, food, biomaterials and bioceramics:

- antacid to relieve heartburn, sour stomach and acid indigestion
- acne treatment and the removal of hard skin
- abrasive medium for microdermabrasion
- opacifier
- drying agent
- viscosity controlling agent
- colour additive (FDA exemption from certification)
- colour additive in form of Aluminum Lakes for drug and cosmetic use: FD&C Blue #1 Aluminum Lake, FD&C Red #40 Aluminum Lake, FD&C Yellow #5 Aluminum Lake
- articulating surfaces in joint replacements
- bone spacers
- dental restoration, orthopedic implants

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. Because of the insolubility and thus relative biological inactivity of aluminium oxide experimental toxicology results are not readily available.[1,4,5,6,7] Other

more soluble aluminium compounds that do not commonly occur in nature have been extensively studied.[1,5,6,7]

The average human intake of aluminium is estimated to be 25 mg/day. This intake comes from foods and drinking water. The intake from pharmaceuticals, antacids and some buffered analgesics can range from 10 – 5000 mg/day. No reports of dietary aluminium toxicity to healthy individuals exist in the literature.[5,6,7]

LD50 values for aluminium oxide ingestion are unavailable because the highly inert Aluminium (+3) is only sparingly absorbed from the gut.[9] (LD₅₀ or single oral dose is the amount of material that it takes to kill 50% of test animals in one dose.)

However, acute aluminium toxicity is unlikely. There is no indication that aluminium is toxic after oral intake.[6]

Absorption of aluminium through the skin is insignificant. An average adult is estimated to absorb 15 µg (0.3 to 0.5 percent) of the 5 mg/day that is taken in from the environment (Committee on Nutrition, 1986).[10] Aluminium absorption via the skin in animals has not been studied.[6]

Results on eye irritation or skin absorption of aluminium oxide on animals have not been found. Reports of systematic studies of the pulmonary absorption of Aluminium Oxide in experimental animals have not been identified. No LC₅₀ has been identified. (LC₅₀ is the lethal dose of inhalation.)

Aluminium compounds have been evaluated as nonmutagenic by most methods of mutagenic assays.[11]

Aluminium Oxide is not known to cause cancer in human or animal and is not classified as a human carcinogen.[1,6]

REFERENCES

- [1] B. D. Dinman, Aluminum, Patty's Toxicology, Fifth Edition, Volume 2, John Wiley & Sons, Inc. 2001
- [2] British Pharmacopoeia (incl. Ph Eur) 2000, Volume I, London.
- [3] U.S. Food and Drug Administration (FDA), Code of federal regulations, Title 21, Volume 1, CITE: 21CFR73.1010
http://www.fda.gov/ora/inspect_ref/iom/APPENDICES/appA12.html
- [4] Aluminum oxide, NIOSH, National Institute for Occupational Safety and Health <http://www.cdc.gov/niosh/homepage.html>
- [5] Aluminum, Klasco RK (Ed): POISINDEX® System. MICROMEDEX, Greenwood Village, Colorado Vol. 114 and references therein.
- [6] Aluminum, Environmental Health Criteria 194, IPCS INCHEM, <http://www.inchem.org/documents/ehc/ehc/ehc194.htm>
- [7] Aluminum, TOXNET, National Library of Medicine <http://toxnet.nlm.nih.gov/> M. G. Soni, S. M. White, W. G. Flamm and G. A. Burdock, Safety Evaluation of Dietary Aluminum, Regulatory Toxicology and Pharmacology, 2001, 33, 66-79 and references therein.
- [8] H. G. Seiler, H. Sigel and A. Sigel. Handbook on the Toxicology of Inorganic Compounds. New York, 1988.
- [9] Committee on Nutrition: Aluminum toxicity in infants and children. Pediatrics, 1986, 78, 1150-1154.
- [10] L. Friberg, G .F. Kessler, E. Keller and V. B. Vouk (Eds.), Handbook of the Toxicology of Metals, Elsevier Science Publishers, 1986.
- [11] The Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) booklet issues by American Conference of Government Industrial Hygienists (ACGIH), 1999.

ANO ALUSION® IS NON NANO AND SAFE

- The aluminium that is used in our cosmetics is Aluminium Oxide, which isn't a salt of aluminium. Aluminium salts will dissolve in water producing Aluminium ions whereas Aluminium oxide is stable and won't dissolve in water or oil.
- The current research at the time suggests that aluminium salts don't pose a health threat [12], though there is still negative press about aluminium resulting in the wide range of aluminium salt free products available. Aluminium oxide doesn't pose a health risk even in larger concentrations because of its inactivity. All types of aluminium are poorly absorbed by the body, increasing its safety, and non-nano aluminium oxide is likely not absorbed through the skin. [13]

[12] Becker, Lillian C, Boyer, Ivan, Bergfeld, Wilma F, Belsito, Donald V, Hill, Ronald A, Klaassen, Curtis D, Liebler, Daniel C, Mark, James G, Shank, Ronald C, Slaga, Thomas J, Snyder, Paul W, & Andersen, F.Alan. (2016). Safety Assessment of Alumina and Aluminium Hydroxide as Used in Cosmetics. International Journal of Toxicology, 35(3_suppl), 16S-33S. <https://doi.org/10.1177/1091581816677948>

[13] Opinion on the safety of aluminium in cosmetic products https://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_153.pdf

Alusion® is EcoCert approved since 2018 by MERCK under its RonaFlair White Sapphire.
ANO is currently working on its own EcoCert approval for Alusion®.

ALUSION® IS ORGANIC

(cas 1344-28-1)

It is also used for its absorbing properties and its waterproof nature. It also functions as an anti-caking and absorbing agent. It is found in many make-up products such as blush, powder foundation, lipstick and facial cleanser. It is authorised as organic. [14]

[14] <https://incibeauty.com/en/ingredients/20105-alumina>

PRODUCTION CAPACITY

- ANO can manufacture in excess of 50mt per annum.
- ANO plans to upgrade facilities to produce > 150mt by the end of 2022.

LOGISTICS

- ANO will have the ability to stock Alusion® from second half of 2021 in US and Netherlands warehouses for distributors to access within 10 working days from the sales orders received.

CURRENT PACKAGES DIMENSIONS

- 20kg Boxes
- 18 Boxes to 1 Pallet (360kg)
- 14 Pallets to 1 20ft container
- 50kg Bags (under trial)
- 10 x 50 Bags in open IBC per Pallet (double stacked)
- Special discount for 500kg Bulk Bags

EUROPEAN NON-NANO STATEMENT

French decree n°2010-232 issued on 17.02.2012

In regard to the French nanomaterial decree n°2012-232, a nanomaterial is defined in article 3 of Regulation (EC) n°1907/2006 (REACH) as a substance intentionally manufactured at nanoscale, containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50% or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm and 100 nm.

Our Alusion® product is non-nano according to the above definition.

Cosmetic regulation EC 1223/2009

In regard to the Cosmetic Regulation EC 1223/2009, a nanomaterial is defined as an insoluble or biopersistent and intentionally manufactured material with one or more external dimensions, or an internal structure, on the scale from 1 to 100 nm.

Our Alusion® product is non-nano according to the above definitions.

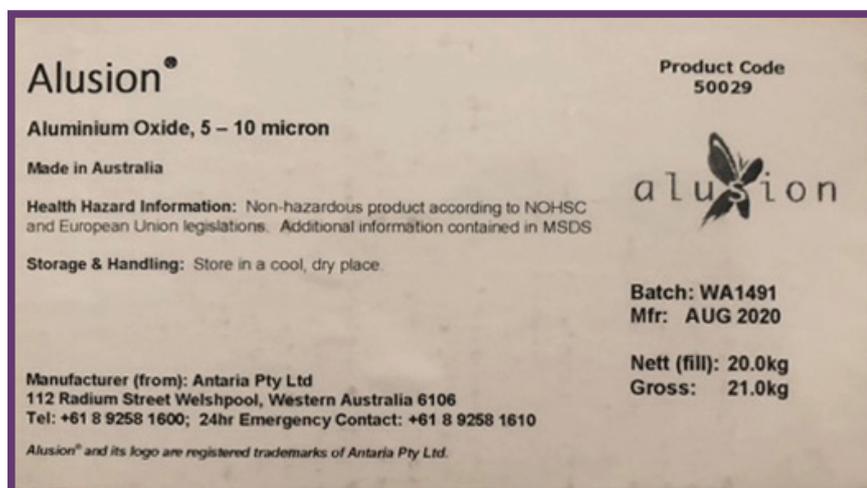
Additionally, no raw materials created by nanotechnology are used in the manufacturing process of our Alusion® product.

G. Acton

Geoff Acton, B. Com. CA

Managing Director

Effective from 13 April 2021



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SINCE 2018
ANO APPROVAL COMING
SOON**

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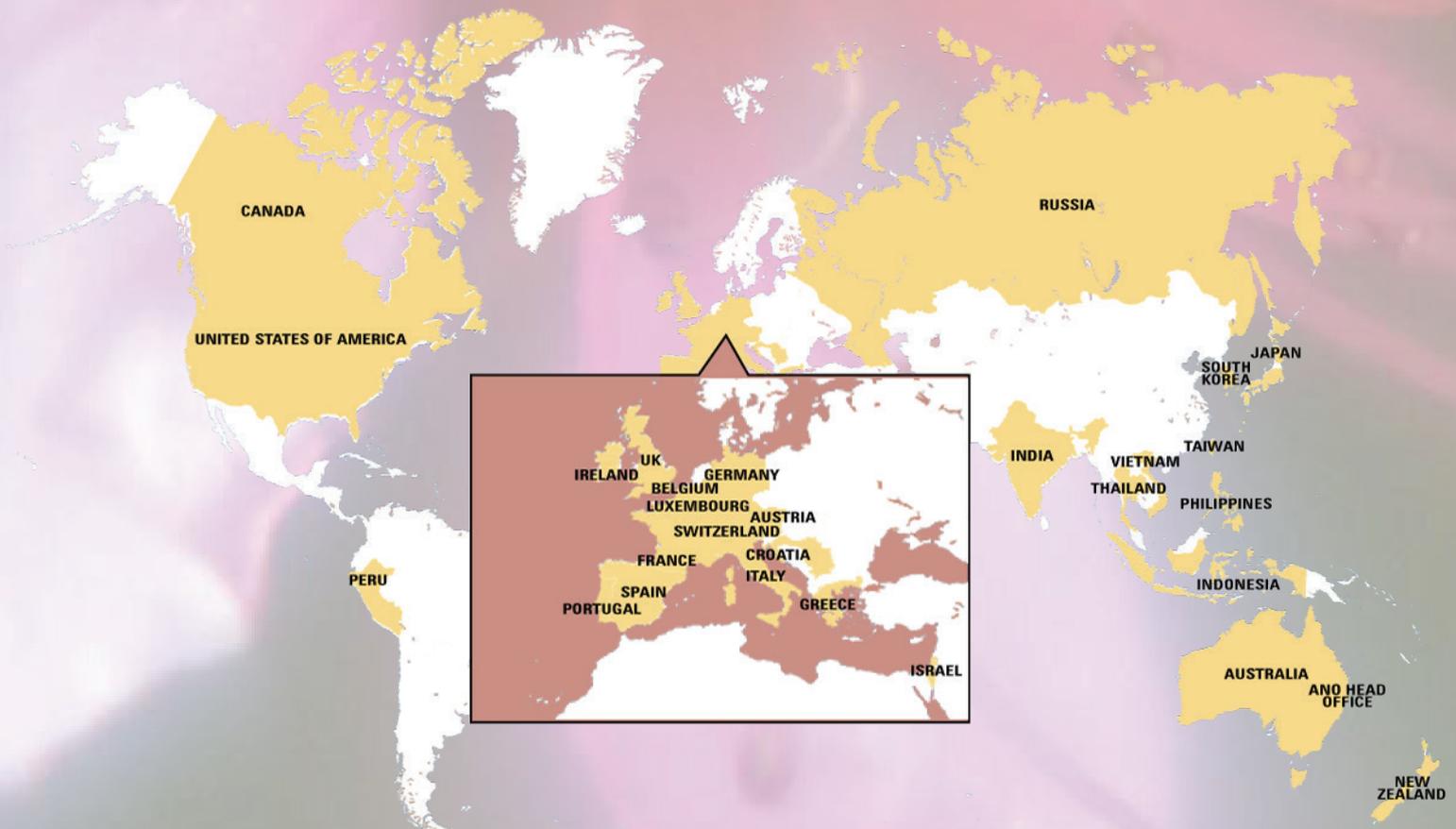
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