

Australian Competition and Consumer Commission

Complaint against Antaria Limited



July 24, 2012

Who is making the Complaint?

Organisation: Friends of the Earth Australia Inc.

Address: PO Box 222, Fitzroy VIC 3065

Contact Persons for the Complainant:

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Who is the complaint against?

Antaria Limited ("Antaria")

Address: 108 Radium St, Welshpool, WA 6106

ABN: 54 079 845 855

ACN: 079 845 855

www.antaria.com

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Chairman: Rade Durovic 0438 333 888

Organisations supporting the complaint

- Australian Education Union (AEU)
- Australian Council of Trade Unions (ACTU)
- State Public Services Federation Group (SPSF) of the CPSU, the Community and Public Sector Union
- Public Health Association of Australia (PHAA)
- Consumer Advocacy Law Centre (CALC)
- The Australia Institute (TAI)
- National Toxics Network (NTN)
- GeneEthics
- Victorian Trades Hall Council (VTHC)
- Ethical Consumer Group (ECG)
- MADGE

Description of conduct for which complaint is being made.

The basis of the complaint is that Antaria is misrepresenting the nature of a component product of sunscreen applications which it manufactures and supplies to third parties in Australia and overseas (Schedule 16).

The component product is a chemical substance known as zinc oxide. Antaria has patented the manufacture of this product (see below) which it markets under the name ZinClear-IM™. Antaria has for some time been representing that ZinClear IM™ is what is described as a “Non-Nano” product and “not a nanomaterial”. In simple terms, “Non-Nano” means that the key constituent particles of the product are larger than 100 nanometres. A “Nano” particle (nanoparticle) is, by contrast, a particle whose size is less than 100 nanometres. However, the term ‘nanoparticle’ does not account for all different types of nanotechnology objects and devices, so the term ‘nanomaterial’ has been created to define objects of all different shapes and sizes with one or more dimension (length, width or height) on the nano-scale. Most significantly here, official definitions of nanomaterials, both here in Australia (NICNAS) and internationally (ISO) include nanomaterials:

- as aggregates/agglomerates (clusters) of nanoparticles
- as objects possessing nano-surface structures.

The Complainant says that ZinClear IM™ is comprised of aggregates of nanoparticles, with intentionally manufactured nano-surface structures. In these circumstances, we consider it is false and misleading for Antaria to represent that ZinClear IM™ as ‘non-nano’. This is discussed further below.

Furthermore, the product ZinClear IM™ as supplied by Antaria, is used as a zinc oxide ingredient in dozens of sunscreen products worldwide. Here in Australia, at least ten different sunscreen brands use this product in their sunscreen or cosmetic (containing sunscreen) formulations as an active ingredient to block harmful UV rays from the sun.

There is growing evidence to support a precautionary approach to the use of nanomaterials in sunscreens, as detailed in the attached report (Schedule 32). Growing public concern around the potential dangers from the use of manufactured nanomaterials in sunscreens has led to several sunscreen brands electing to purchase ‘non-nano’ formulations and to market their brands as ‘non-nano’ or ‘nano-free’. The complainant says polling demonstrates there is a significant section of the general public who are aware of these concerns and who, as a consequence, choose to use sunscreen products which are non-nano.

The abovementioned public concerns are illustrated by a number of public polling surveys which show a significant section of the general public has concerns about issues related to the safety of nano-particles in sunscreens and the labelling of sunscreens containing nano particles. Further details of these surveys and an example of related media are annexed to this complaint (Schedule 28-30)

It would also appear that some of the sunscreen brands using ZinClear IM™ in their own formulations are doing so on the basis of the representations by Antaria that ZinClear IM™ is non-nano.

History of nano sunscreen products.

1. Antaria developed the ZinClear IM™ technology in about May 2006. Antaria described it as an “Index Matched™ zinc oxide dispersion that achieves superior transparency in larger micron sized zinc oxide particles”. Since 2007, Antaria has represented to its customers, investors, regulators and the public that ZinClear-IM is not a nanomaterial. Antaria’s corporate filings with the ASX and the material published by it have all conveyed the non-nano representation.

The relevant patent describing the ZinClear IM™ technology (US 2010/0310871 A1) was registered in the USA in December 2010 (Schedule 2)

2. As the Complainant understands, in the years prior to the development of ZinClear IM™ (that is - prior to 2006) Antaria had produced a zinc oxide ingredient which was in the nano-range for use in sunscreens. It was able to do this as it had access to then emergent nano-technology and because zinc-oxide formulations in the nano range had desirable attributes in terms of transparency, spreadability and the like. The complainant understands this product was marketed to sunscreen suppliers as a nano-product.
3. In those early years concerns began to emerge in scientific studies and elsewhere about the safety and desirability of the use of nano-particles in sunscreens.
4. It was at about this time that Antaria ceased to market its nano zinc oxide product and replaced it with the ZinClear IM™ product.
5. In September 2006, the Australian Government regulator National Industrial Chemicals Notification and Assessment Scheme (“NICNAS”) published an Information Sheet on Nanomaterials which explained “a nanomaterial is a material having at least one dimension 100 nanometres or less, can be nano-scale in one dimension (eg. surface films), two dimensions (eg. strands or fibres), or three dimensions (eg. particles) – and can exist in single, fused, aggregated or agglomerated forms...”(Schedule 3)
6. Subsequently, in October 2010, NICNAS (Schedule 4) and the International Organisation for Standardisation (ISO/TS 80004-1:2010) both launched formal definitions for nanomaterials (Schedule 5). The Complainant says that according these definitions, the ZinClear IM™ technology is a nanomaterial.
7. In 2012, the Complainant sought an opinion from Australian Government body - National Measurement Institute (NMI) - as to the ZinClear IM™ particles as described in Antaria’s US Patent 2010/0310871A1 (“the Patent”). The conclusion to the June 28 report (Schedule 1) at paragraph 6 States:

It is the opinion of the National Measurement Institute (NMI) that the “mesoporous zinc oxide powder” described in Patent US 2010/0310871 A1 is a “nanomaterial” according to International Organisation for Standardisation (ISO) technical specifications and an “industrial nanomaterial” as defined in the Australian Government National Industrial Chemicals Notification and

Assessment Scheme (“NICNAS”) document “Guidance on new chemical requirements for Notification of Industrial Nanomaterials.”

8. The ZinClear IM™ patent uses the Malvern Mastersizer laser scattering instrument to measure the size of the ZinClear IM™ aggregates in the range of micrometres. However, this patent also uses other techniques (such as X-ray diffraction and Scanning Electron Microscopy) to measure 15-20 nanometre particles (nanoparticles) throughout the ZinClear IM aggregates.
9. Antaria appear to have only reported the laser scattering measurements to their sunscreen brand customers.

The complainant says that by representing ZinClear IM™ as non-nano to the public, customers (particularly sunscreen brands), shareholders and the Australian stockmarket, Antaria is engaging in misleading and deceptive conduct, and as such, is in violation of the *Competition and Consumer Act (2010)*.

Further, we assert that past statements by Antaria senior employees acknowledging the nano-structure of ZinClear IM™, and the fact that relevant patents state clearly that the product is meso-porous (possesses nano-scale pores) and based on aggregates of primary nanoparticles, make clear that Antaria understood that its flagship product was a nanomaterial, as per all relevant Australian and international definitions.

Complainant’s Involvement/Claim for Damages

Since 2008, Friends of the Earth Australia has produced the “Safe Sunscreen Guide” annually. This guide informs the public which sunscreens in Australia contain manufactured nanomaterial ingredients and which brands claim to avoid using manufactured nanomaterial ingredients in their products. The most recent Safe Sunscreen Guide is based on signed responses to a survey from over 130 sunscreen brand representatives (Schedule 25). These survey results show that many of these brands consider that their product is “non-nano” despite containing ZinClear IM™ and it seems they have come to this view because of representations made to them by Antaria that ZinClear IM™ is a “non-nano” product.

The Safe Sunscreen Guide relies on and incorporates information from those sunscreen brands that use ZinClear IM™ as a means of informing the general public as to which sunscreen brands contain nanomaterials and which do not. At least 10,000 hard copies and 50,000 digital copies of the guide were known to be distributed to Australian homes and schools between December 2011 and February 2012. Further distribution by the channel 7 program (Today Tonight) and channel 10 program (The Project) following television appearances would likely have resulted in thousands more copies distributed to the Australian public in January 2012.

This series of events effectively means the Safe Sunscreen Guide is, itself inaccurate in stating that certain sunscreen brands are “nano-free” (non-nano) when it seems they are not.

It took the Complainant’s employees approximately five months to prepare and undertake the survey, verify the data, design, print, promote and distribute the guide.

Subsequent additional costs for printing, distribution and promotion bring the total Safe Sunscreen Guide expenses in the order of \$73,000. While many Safe Sunscreen Guides have already been distributed since the most recent release on December 1, 2011, approximately 45,000 printed guides have been withdrawn and destroyed since being rendered inaccurate in the manner described above.

Friends of the Earth Australia's Safe Sunscreen Guide

This publicly available guide lists approximately 133 different brands of sunscreen and cosmetics containing sunscreen. Each brand is separated into one of four categories:

- Nano and chemical-free (Dark green)
- Nano-free (Light green)
- May Use Nano (Amber)
- Use Nano (Red)

Brands supplied by Antaria were listed in the nano-free section, on the basis of signed statements from the sunscreen brands and in most cases supplementary certificates of analysis provided by Antaria to support non-nano claims (Schedule 17,18 &21). As a result of Antaria's conduct, at least ten sunscreen brands were inaccurately listed as 'nano-free', when they are in fact based on manufactured nanomaterials.

Following the revelations of this inaccuracy, Friends of the Earth Australia has blocked all further web access to the Safe Sunscreen Guide (Schedule 25) and withdrawn and destroyed 45,000 printed copies. We have also worked with other stakeholders to recall from display and circulation further thousands of copies of our guide.

As a result of the inaccuracies caused by Antaria's misleading and deceptive conduct, Friends of the Earth Australia has suffered serious reputational loss. The inaccuracies in our guide have been the focus of the National Measurement Institute presentation and subsequent discussion at the ICONN (International Conference On Nanoscience & Nanotechnology) conference (Schedule 6), media coverage and government commentary. It has been suggested by many commentators that the inaccuracies result from our error, rather than stemming from false statements provided to sunscreen brands by Antaria.

Correspondence between Friends of the Earth & Antaria Limited

Prior to February 2012, there has been minimal correspondence between Friends of the Earth and Antaria Limited.

1. Meetings in Perth

Following the NMI presentation at the ICONN conference in Perth on February 6, 2012, Gregory Crocetti immediately arranged to meet the General Manager of Advanced Research and Development at Antaria on February 7 to raise the concerns raised from the previous day, i.e. NMI research indicating that nanomaterials were detected in three sunscreen products using ZinClear IM (Cancer Council Classic, Invisible Zinc Junior & Invisible Zinc Body).

The subsequent meeting with the General Manager of Advanced Research and Development at Antaria on February 8 was also attended by key figures from CSIRO and the NMI, failed to resolve differences between the claims of Antaria and the measurements by the National Measurement Institute.

2. Further emails between Gregory Crocetti and Antaria

Emails were then sent to the General Manager of Advanced Research and Development at Antaria on February 13, 14 & 15 to clarify FOE's understanding from the two meetings during the previous week (Feb 7/8) and suggest further experimental data that Antaria should provide to Friends of the Earth.

Significantly, this included the recommendation that Antaria:

- work with the NMI to clarify the remaining serious discrepancies in results
- conduct independent analysis of ZinClear IM particles

The General Manager of Advanced Research and Development at Antaria confirmed to Friends of the Earth Australia in writing via email on February 24 that the patent (US 2010/0310871A1) is the basis for the ZinClear-IM range (Schedule 7).

3. Communication with the Non-executive Chairman of Antaria

On February 23rd, Friends of the Earth emailed Baxter Laboratories (manufacturers of Natural Instinct sunscreens and other sunscreen brands such as Woolworths). This email suggested that ZinClear IM was a nanomaterial and that we believed Antaria were misleading their customers.

Also on February 23rd, the Non-executive Chairman of Antaria called and spoke on the phone to Gregory Crocetti for approximately 20 minutes and subsequently emailed Friends of the Earth an invitation to meet with the Antaria directors on February 28/29.

This offer was declined on February 28th, while Friends of the Earth awaited both responses to all questions from the General Manager Advanced Research and Development at Antaria as well as legal advice in relation to what Friends of the Earth could safely disclose and discuss without fear of litigation.

On March 1st, the Non-executive Chairman of Antaria again offered to meet and asked Friends of the Earth to not correspond with Antaria staff, partners or customers.

On May 21st, Friends of the Earth wrote to Antaria seeking restorative actions to be taken and compensation for financial loss as a result of Antaria's misleading and deceptive conduct (Schedule 8).

On July 6, following a phone call from the Non-executive Chairman of Antaria, Friends of the Earth wrote back to Antaria requesting a written response to our May 21st letter (Schedule 9).

Friends of the Earth received a response from the Non-executive Chairman of Antaria on July 11th, rejecting all assertions and claims previously made by Friends of the Earth (Schedule 10).

Friends of the Earth rejects all assertions made in the July 11 letter from Antaria and are preparing a detailed response which we will provide to the ACCC.

Technical Background Information

1. The Definition of ‘nanomaterial’

The complainant relies on the National Measurement Institute report of 28 June 2012 (Schedule 1) in support of its contention that ZinClear-IM is a nano-material.

Additionally the Complainant is aware of further definitions of nano-material in other jurisdictions. Two examples are:

(a) *US National Nanotechnology Initiative:*

“Nanomaterials are all nanoscale materials or materials that contain nanoscale structures internally or on their surfaces. These can include engineered nano-objects, such as nanoparticles, nanotubes, and nanoplates.”

(b) *European Union:*

“A natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where...one or more external dimensions is in the size range 1 nm - 100 nm.” [specifies that 50% or more of the number of particles in a sample must be as described]

2. Claims from Antaria in relation to the ZinClear-IM product

Antaria’s patents describe ZinClear-IM as possessing characteristics that would result in it being categorised as a ‘nanomaterial’:

The ZinClear IM™ US patent 2010/0310871A1 (attached) states:

- It is intentionally manufactured to have novel properties (transparency) that are related to its nanoscale surface structure
- It is an aggregate (minimum size of approximately 0.8 µm – 1 µm, ie 800-1,000 nm; see clauses 0012-0021) composed of primary zinc oxide crystallites that are nanoscale (on average about 5-50 nm; see clause 0054)
- The aggregates of primary zinc oxide nano-crystallites are nano-structured; that is, the aggregates are intentionally manufactured to be mesoporous (clause 0024, the surface of the aggregates have nanoscale pores (2-100 nm in size; see clause 0048s and 0055)

The General Manager of Advanced Research and Development at Antaria has confirmed to Friends of the Earth Australia in writing via email that the patent (US 2010/0310871A1) is the basis for the ZinClear-IM range (Schedule 7).

Antaria and its representatives have made public statements that acknowledge ZinClear-IM is nano-structured

- a) Advanced Nanotechnology Limited [the previous name of Antaria] open briefing to ASX 4 October 2006, p4 (Schedule 11)

Available at: http://www.antaria.com/news/ano_open_briefing_041006.pdf

[Then] CEO Dr Paul McCormick states: “Our new Index Match technology makes larger particles, greater than one micron, transparent. This is achieved through a clever design of the particles whereby they are nanostructured but have a much larger size.”

b) Advanced Nanotechnology Limited Financial Report 2007, p8 (Schedule 12)
Available at: <http://www.aspectfinancial.com.au/asxdata/20070921/pdf/00761750.pdf>
“ZinClear IM™, stable dispersions of transparent micron-sized nanostructured zinc oxide powders”

c) Antaria Limited Annual Report 2011, p6 (Schedule 13)
Available at: http://www.antaria.com/news/ANOFY11_Annual_Report_30Sep11.pdf

“Antaria’s technology base allows the delivery of a micron sized zinc oxide particle which retains superior transparency due to the mesoporous [presence of nanoscale pores] nature of the particle, providing a competitive advantage over other mineral UV absorbers.”

Yet Antaria has made conflicting statements to potential investors that claim or imply that ZinClear-IM is not a nanomaterial

a) Antaria Limited presentation to BRR media “Understanding Antaria’s flagship product: ZinClear-IM”, 2 Feb 2011 (Schedule 14)
Available at: <http://www.brrmedia.com/event/72868/antaria-ltd-understanding-antarias-flagship-product-zinclear-im-dr-deborah-cooper-managing-director>

P3 “Micron sized (non-nano)”

P14 contrasts ZinClear IM™ with competitors’ nano zinc oxide and titanium dioxide which are “caught in nano debate”. Promotes ECOCERT certification in Europe [ECOCERT has a principle of not certifying products that contain nanoparticles]

P16 “micron sized particle (non-nano)”

b) Antaria Limited presentation to ASX “Antaria Limited Platform for Profitability”, 24 August 2011 (Schedule 15)

Available at: <http://www.asx.com.au/asxpdf/20110824/pdf/42019r4frj7hpy.pdf>

P2 “transition from nano to micron size particle”

P8 “micron sized (non-nanoparticulate)”

18 contrasts Antaria’s nano zinc oxide product which has “nano concerns in some markets” with ZinClear IM which is “micron sized”

Antaria has provided signed certificates to its customers stating that ZinClear IM™ is not a nanomaterial and is based on a particle size >1 µm

a) See signed certificate provided by Antaria to Invisible Zinc stating that Antaria Limited certifying that ZinClear IM™ is NOT classified as ‘nano material’”, that

“the particle size is >100 nm” and “the average particle size is greater than 1 µm” (Schedule 17)

- b) Certificates of analysis were also provided to Woolworths, Natural Instinct, ChemMart, Grahams, Terry White chemists, Pharmacy Choice, WotNot and Mukti certifying that the particle size is greater than 1 µm. Two examples of these certificates are provided (Schedule 18 & 22)

3. Antaria’s customers (sunscreen manufacturers) believed Antaria’s claims to mean that their products did not contain manufactured nanoparticles, agglomerates or aggregates of manufactured nanoparticles

Friends of the Earth received questionnaire responses from the Cancer Council, Woolworths, ChemMart, Terry White chemists, Invisible Zinc, Pharmacy Choice, Natural Instinct, WotNot, Grahams SunClear and Mukti Botanicals stating that their products are free of manufactured nanoparticles, including agglomerates or aggregates composed of nanoparticles.

- a) Example of questionnaire cover letter sent to Natural Instinct on October, 2011 (Schedule 19)
- b) Email response from the Natural Instinct manufacturer on October, 2011 (Schedule 20)
- c) FOE questionnaire response from Natural Instinct, October, 2011 (Schedule 21)
- d) ZinClear certificate of analysis from Natural Instinct, October 2011 (Schedule 22)
- e) FOE questionnaire response from Cancer Council in October 2011 (Schedule 23)
- f) FOE questionnaire response from Invisible Zinc in October 2010 (Schedule 24)

4. Public statements from Antaria customers regarding the nano-free status of their products

The following organisations made statements about the nano-free status of their products on their websites, for which we have pdfs:

- Cancer Council (subsequently removed this claim but we have a pdf (Schedule 26)
- Invisible Zinc (Schedule 27)
- Mukti Botanicals
- Natural Instinct (subsequently removed this claim but we have a pdf)
- Wotnot

Schedule/Attachments

Evidence supporting the claim that ZinClear IM is a nanomaterial

1. Report from the National Measurement Institute, 28th June, 2012
2. Antaria Patent US 2010-0310871 A1, filed 9th Dec, 2010
3. NICNAS Information Sheet on Nanomaterials, 2006
4. NICNAS Nanomaterial definition (NICNAS-Guidance on New Chemical Requirements for Notification of Industrial Nanomaterial), issued October 5, 2010
5. ISO Nanotechnologies -Vocabulary (ISO-TS_80004-1-2010)
6. Presentation by Dr. Victoria Coleman at the ICONN conference (in Perth, February 6, 2012) outlining testing of six commercial sunscreens (including Invisible Zinc and Cancer Council products)

Key Correspondences with Antaria Limited

7. Email from Antaria confirming the patent (US 2010-0310871 A1) is the basis for the ZinClear IM technology - February 24, 2012
8. Friends of the Earth letter to Antaria - May 21st, 2012
9. Friends of the Earth letter to Antaria - July 6th, 2012
10. Antaria response to Friends of the Earth - July 11th, 2012

Examples of Antaria's Public Statements acknowledging ZinClear IM is nano-structured

11. Advanced Nanotechnology Limited [the previous name of Antaria] open briefing to ASX 4 October 2006, p4
12. Advanced Nanotechnology Limited Concise Financial Report 2007, p8
13. Antaria Limited Annual Report 2011, p6

Examples of Non-Nano claims from Antaria & Known Global Distribution of ZinClear IM

14. Slides from Antaria Limited presentation to BRR media "Understanding Antaria's flagship product: ZinClear-IM", 2 Feb 2011, pages 3, 14 & 16
15. Antaria Limited presentation to ASX "Antaria Limited Platform for Profitability", 24 August 2011, pages 2, 8 & 18
16. Global Distribution of ZinClear IM from Antaria Limited, based on all available information from Antaria and FoE sunscreen survey, March 2012

Material in preparation of the Safe Sunscreen Guide

17. ZinClear IM "Not classified as a Nanomaterial" Certification to Invisible Zinc
18. ZinClear IM Certificate of Analysis provided by Grahams, October 2011
19. Example of questionnaire cover letter sent to Natural Instinct on October, 2011
20. Email response from the Natural Instinct manufacturer on October, 2011
21. FOE questionnaire response from Natural Instinct, October, 2011
22. ZinClear certificate of analysis from Natural Instinct, October 2011
23. FOE questionnaire response from Cancer Council, October 2011
24. FOE questionnaire response from Invisible Zinc, October 2010

FoEA Safe Sunscreen Guide & Sunscreen brand claims

25. Friends of the Earth's Safe Sunscreen Guide (Summer 2011-2012)
26. Cancer Council website nano-free claims (Feb 7, 2012)
27. Invisible Zinc website nano-free claims (Feb 17, 2012)

Examples of the widespread nano-sunscreen concerns & distribution of the Safe Sunscreen Guide

28. Polling around public knowledge and usage of nano-sunscreens by Department of Innovation (DIISRTE), January 2012
29. Polling of public expectations for testing and labelling of nano-sunscreens by The Australia Institute, October 2010
30. Today Tonight website following story 'Sunscreen cancer risk' (Jan 3, 2012)
31. FOE website withdrawal of the Safe Sunscreen Guide (Feb 2012)
32. 'Nano-ingredients in Sunscreen' report, released by Friends of the Earth and endorsed by the Public Health Association of Australia (July 2012)

Letters of Support for this ACCC Complaint

33. Australian Education Union (AEU)
34. Australian Council of Trade Unions (ACTU)
35. State Public Services Federation Group (SPSF) of the CPSU, the Community and Public Sector Union
36. Public Health Association of Australia (PHAA)
37. Consumer Advocacy Law Centre (CALC)
38. The Australia Institute (TAI)
39. National Toxics Network (NTN)
40. GeneEthics
41. Victorian Trades Hall Council (VTHC)
42. Ethical Consumer Group (ECG)
43. MADGE