



ABN 46 139 461 733

01 July 2020

### **New Product Launch – DrZinX Mouth Spray**

AIR advises that its first production with its invention including Hinokitiol will be completed in early July 2021 and should be ready for sale through AMAZON EU by the end of July.

### **New Patent – Sanitising Antimicrobial Hand, Face & Body Moisturiser (Application #2020902203)**

AIR has filed a joint patent application with ANO on a 50/50 basis, for a new sanitising antimicrobial hand, face and body moisturiser product with SPF15 which includes a percentage of zinc and hinokitiol as part of the patented invention.

The AIR Board makes no claims that this product will cure Covid-19 or in fact will stop you contracting Covid-19. Like our prior invention, the product has been sent to MSL Solution Providers in London to test for its effectiveness.

To test the efficacy of our product, we plan to conduct a test against the feline coronavirus to the EN Standard 14476:2013+A2:2019. Feline coronavirus is the globally accepted surrogate for COVID-19. We do not expect these results to be available for some weeks.

Further, there will be no impact to revenue for FY2020 and cannot predict what impact if any for FY2021.

Whilst the main ingredients, zinc and hinokitiol, in the invention are well known, the science behind the invention and the use of these ingredients in products is complex. It is beyond the scope of this announcement to explain the detail of such science which of itself is not market sensitive information nor necessarily informative for disclosure purposes. However, for those investors who have an interest in such details a copy of the full patent is attached for ease of reference (in addition to being publicly available). What is important and valuable is whether the assessors of the patent agree that the science set out in patent is sufficiently novel that it can be granted patent protection. Whilst AIR is confident its invention is novel and patentable, there can be no assurance that the patent application will be granted.

ASX had a number of queries in respect of announcements regarding a patent application filed by AIR in March 2020 which resulted in the company's shares being suspended for a prolonged period. Although the Board doesn't necessarily agree with the market relevance of the questions or the responses to those questions, the Board is eager to avoid a further unnecessary suspension. In anticipation of ASX having the same queries, AIR offers the following information:

1. The IP lawyer who filed this patent application is Gary Nock from Spruson and Ferguson. He has confirmed the application can be filed based on additional testing of the invention over the next 12 months.
2. The patent application has been filed on 30 June 2020 by Gary Nock from Spruson and Ferguson.
3. The inventors on this invention are Dalia Mizikovsky and Joseph Mizikovsky who are relatives of Mr Lev Mizikovsky, Chairman of both companies.
  - (a) Dalia Mizikovsky – Bachelor of Advanced Science, majoring in Biomedical Science. Currently completing her Honours in Developmental Biology at UQ (GPA 6.7) and has been employed by ANO since 17 April 2019.
  - (b) Joseph Mizikovsky – has completed 2 subjects at the London School of Economics, and is currently studying a Bachelor of Business, majoring in marketing at QUT and has been employed by AIR since 26 September 2017.
4. Antaria Pty Ltd, which is 100% owned subsidiary of Advance NanoTek Limited, prepared a single preparation sample for testing in its approved TGA licenced facility. The sample was not part of a batch production process nor does it have an expiry date that would identify the product, hence the non-identification of the product.
5. The product supplied to MSL Solution Providers in the UK for testing is a genuine sanitiser hand, face and body moisturiser using a percentage of our invention, the subject of the patent application.
6. A standard organism feline coronavirus test of the product will be completed in approximately 5 weeks by MSL, at which stage AIR will confirm if the testing was successful.

7. MSL will conduct a standard test, the non-standard refers to the organism used in the test, being an organism grown in the lab (Munich strain) and in respect of which there is no other comparable organism (hence it being “non-standard”).
8. The standard method BS EN 14476 describes a test method and the minimum requirements for virucidal activity of a chemical disinfectant and antiseptic products that form a homogenous physically stable preparation when diluted with hard water – or in the case of ready to use products that are not diluted when applied, - with water. Products can only be tested at a concentration of 80% (97% with a modified method for special cases) as some dilution is always produced by adding the test organisms and interfering substances. This European Standard applies to products that are used in the medical area in the fields of hygienic handrub, hygienic handwash, instrument disinfection by immersion, surface disinfection by wiping, spraying, flooding or other means and textile disinfection.”
9. The proposed application of the invention is a sanitising hand, face and body moisturiser similar to other antiseptic products on the market advertising their antiseptic capabilities.

Authorised by:  
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Managing Director

## TITLE

Sanitizing, antimicrobial hand, face and body Moisturiser

## TECHNICAL FIELD

[0001] The present invention relates to the field of moisturising hand, face and body sanitizing products. Specifically, it relates to a moisturising, alcohol-free, antimicrobial composition which can be safely and routinely used for maintaining appropriate hand, face and body hygiene.

## BACKGROUND ART

[0001] The transfer of bacteria from hands to food, objects, or people has a important role in the spread of many communicable diseases. As such, measures to maintain hand hygiene are crucial for disease prevention and infection control within communities. Employment of hand hygiene interventions has been found to greatly reduce the incidences of respiratory and gastrointestinal infections in the general population and in at-risk groups. Additionally, hand hygiene measures are key in health-care settings for infection control and patient outcomes.

[0002] Handwashing, face washing and body washing which removes microbes from the body via mechanical action, is considered an effective hygiene intervention. However, compliance in the general population is poor, partially due to the inaccessibility of the necessary supplies in public situations. Additionally, frequent hand, face and body washing, such as that which occurs in health-care settings, or during a period of active infection control, leads to irritant contact dermatitis. Irritant contact dermatitis is an inflammatory condition which results from the breakdown of the skin's barrier function due to excess exposure to water, detergents and other chemicals.

[0003] As such, alternative interventions in the form of sanitizing hand-rubs have been utilised. The most common sanitizing compositions utilise a high percentage (> 60%) of alcohol as the main disinfectant agent. However, these compositions can further dry the skin, and lead to irritant contact dermatitis in some individuals. Additionally, alcohol-based sanitisers are only effective for the duration that the product remains on the skin. Commercially available non-alcohol-based products use two categories of active ingredients:

benzalkonium chloride and herbal extracts. Although benzalkonium chloride compositions have been shown to be as effective as alcohol-based hand rubs, the chemical has been linked to both irritant and allergic contact dermatitis. Indeed, people with conditions which compromise the skin barrier, such as eczema and cancer patients, are often unable or unwilling to use chemical or alcohol-based hand sanitizers. Herbal hand sanitizers, although less harsh, have been shown to have significantly reduced antimicrobial action compared to alcohol and benzalkonium chloride compositions. Many commercially available herbal sanitisers either contain alcohol or fail to show their anti-microbial data.

[0004] US Patent Publication No. 20200078281 discloses a personal rinse-off cleansing composition containing Hinokitiol and a 2-pyridinol-N-oxide. The composition is suggested for direct use or for use as a preserving agent.

[0005] US Patent Publication No. 20150173355A1 details a non-aqueous antimicrobial composition comprising hinokitiol with 1,3-Propanediol or Sorbitan Caprylate. The composition is for use in a variety of personal care and disinfectant solutions.

[0006] US Patent Publication No. 20030083212 discloses a waterless antimicrobial hand-cleanser that should be wiped off or rinsed off after use. The composition may utilise a number of natural essential oils, in one embodiment containing hinokitiol.

[0007] In view of the foregoing, a need exists in the field for an herbal, moisturising hand, face and body sanitizing composition, which is effective against a wide range of common human pathogens, including bacteria, viruses and fungi while remaining easy and pleasant to apply. In this niche, the composition must also be non-irritating, not inducing of irritant contact dermatitis and moisturising when used frequently over long periods of time. The hand, face and body sanitizing composition will also aid in maintaining skin-barrier function by replenishing key lipids.

[0008] It will be clearly understood that, if a prior art publication is referred to herein, this reference does not constitute an admission that the publication forms part of the common general knowledge in the art in Australia or in any other country.

## SUMMARY OF INVENTION

[0009] In one aspect, the present invention provides a moisturising, hand face and body sanitizing composition for maintaining general hygiene, comprising at least one zinc compound or at least one zinc salt and hinokitiol or a salt thereof in an oil-based emulsion.

[0010] In one embodiment, at least one zinc compound or at least one zinc salt may be selected from one or more of zinc chloride, zinc oxide, zinc myristate, zinc citrate, zinc nitrate, or zinc sulfate, zinc chlorate, zinc phosphate, zinc molybdate, zinc chromate, zinc bromide and zinc iodide. Other zinc salts that are non-toxic may also be used. The zinc salts may be inorganic salts or organic salts.

[0011] In one embodiment, the composition comprises an effective amount of at least one zinc compound or at least one zinc salt and hinokitiol. In one embodiment, the weight ratio of the zinc compound and/or zinc salt and the hinokitiol and salts thereof is within the range of 30:1 to 1:1.

[0012] The composition of the present invention is expected to show broad spectrum antimicrobial properties. The composition is also moisturising to the skin of the hands, face and body. The composition is also expected to persist on the skin after immediate application, and to continue exerting antimicrobial effect. The composition of the present invention is suitable for use in hand, face and body sanitizing and moisturising products, otherwise known as sanitizing hand rub, hand antiseptic, or hand-rub and face creams and body wash or body creams. Products containing this composition may be used regularly and frequently, for extended time-periods without experiencing any adverse effects.

[0013] The composition exploits the combinatorial effect of zinc compounds and hinokitiol to achieve a highly effective hand, face and body sanitizing composition. Both compounds possess individual antimicrobial activities. However, the synergistic interaction between the compounds leads to greatly enhanced antimicrobial action. Additionally, the synergistic interaction creates anti-viral activity, an effect unobserved in the individual compounds.

[0014] Any therapeutically acceptable salt of hinokitiol or any pharmaceutically acceptable salt of hinokitiol may be used in the present invention. However, preferred embodiments may use hinokitiol. The IUPAC name of hinokitiol is 2-Hydroxy-6-propan-2-

ylcyclohepta-2,4,6-trien-1-one.

[0015] The present invention provides a method for hand, face and body sanitization without causing irritation or dryness. The composition may comprise a sanitizing hand, face and body rub which may be used by rubbing it onto the hands, face and body. The present invention is not limited by the dispenser in which it is stored or used.

[0016] Any of the features described herein can be combined in any combination with any one or more of the other features described herein within the scope of the invention.

[0017] The reference to any prior art in this specification is not and should not be taken as an acknowledgement or any form of suggestion that the prior art forms part of the common general knowledge.

#### DESCRIPTION OF EMBODIMENTS

[0018] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items. As used herein, the singular forms "a", "an", and "the" are intended to include the plural forms as well as singular forms, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising", when used in this specification, specify the presence of stated features, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, steps, operations, elements, components, and/or groups thereof.

[0019] Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one having ordinary skill in the art to which the invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

[0020] In describing the invention, it will be understood that a number of techniques and steps are disclosed. Each of these has individual benefit and each can also be used in

conjunction with one or more, or in some cases all, of the other disclosed techniques. Accordingly, for the sake of clarity, this description will refrain from repeating every possible combination of the individual steps in an unnecessary fashion. Nevertheless, the specifications and claims should be read with the understanding that such combinations are entirely within the scope of the invention and claims.

[0021] The present disclosure is to be considered as an exemplification of the invention and is not intended to limit the invention to the specific embodiments illustrated by the figures or description below.

[0022] The present invention will now be described. The composition is comprised of hinokitiol and a zinc salt or zinc compounds, including but not limited to zinc chloride, zinc oxide, zinc nitrate, zinc chlorate, zinc sulfate, zinc phosphate, zinc molybdate and zinc chromate as the active antimicrobial compounds. The compounds will be dispersed in a moisturizing emulsion (see example 1). This composition may be used as a topically applied hand-sanitizing agent for broad anti-microbial action. The composition would be safe for use on irritated and dried skin, in addition to sensitive skin, where the use of classic hand sanitizers is unadvisable.

[0023] In an embodiment where zinc oxide is used as the zinc compound in the hand, face and body sanitizing composition, the hand, face and body sanitizing composition will provide SPF < 15 in addition to all qualities described previously.

[0024] The antimicrobial composition is prepared by mixing phase A components and heating the components to 55-60°C. Heat phase B components to same temperature. Combine phase A into phase B slowly, until no phase separation is visible.

#### ILLUSTRATIVE EXAMPLE 1:

<b>Antimicrobial Composition</b>	<b>wt %</b>	<b>Phase</b>
Theobroma oil, Theobroma cocoa, Theobroma cocoa oil extract	13 - 17	B
Alusion	4 - 6	B
XP65COCO (Zinc Oxide)	12 - 18	B



Hinokitiol	0.1 - 1	B
Glycerol derived emulsifying agent	6 - 10	B
Water	53 - 58	A
Cetyl Phosphate	0.5 - 2	A

[0025] In the present specification and claims (if any), the word ‘comprising’ and its derivatives including ‘comprises’ and ‘comprise’ include each of the stated integers but does not exclude the inclusion of one or more further integers.

[0026] Reference throughout this specification to ‘one embodiment’ or ‘an embodiment’ means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearance of the phrases ‘in one embodiment’ or ‘in an embodiment’ in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more combinations.

[0027] In compliance with the statute, the invention has been described in language more or less specific to structural or methodical features. It is to be understood that the invention is not limited to specific features shown or described since the means herein described comprises preferred forms of putting the invention into effect. The invention is, therefore, claimed in any of its forms or modifications within the proper scope of the appended claims (if any) appropriately interpreted by those skilled in the art.

#### CITATION LIST

##### PATENT LITERATURE

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