



Advanced Protective Films and coatings for commercial applications

20th April 2023



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Introduction



Humans interact with surfaces all the time, from touch screens, seats, to benchtops. We are making them safer with Science. Our technology can also be applied to surfaces that need to work reliably unobstructed from grime and dirt – like solar panels.

We are technology innovators who specialise in the development of protective films and coatings for large-scale commercial applications/interfaces.

Our Technology – Developed over a decade together with global product leaders

- Antiviral & antibacterial continuous protection – Film & spray-on coatings that provide protection against viruses and bacteria validated by Nestlé Research, Switzerland^[1]. Reduce Hospital Acquired Infection (HAI's), reduce cleaning frequency & use of harsh chemicals with passive Nanoshield™ protection
- Self-cleaning solutions – antimicrobial hydrophobic coating for glass surfaces; solar panels, glass facades, underwater cameras. Antifouling marine coating for painted and bare metal surfaces; oil rigs, weather stations & ship hulls. Reduce repainting frequency, extend reusable lifespan.
- Health & wellness – technology to increase blood flow aiding in injury repair & prevention. Natural negative ion production coating for air purification, improved sleep & mental clarity.

Our Strategy – Focussing on near term market opportunities for films and coatings

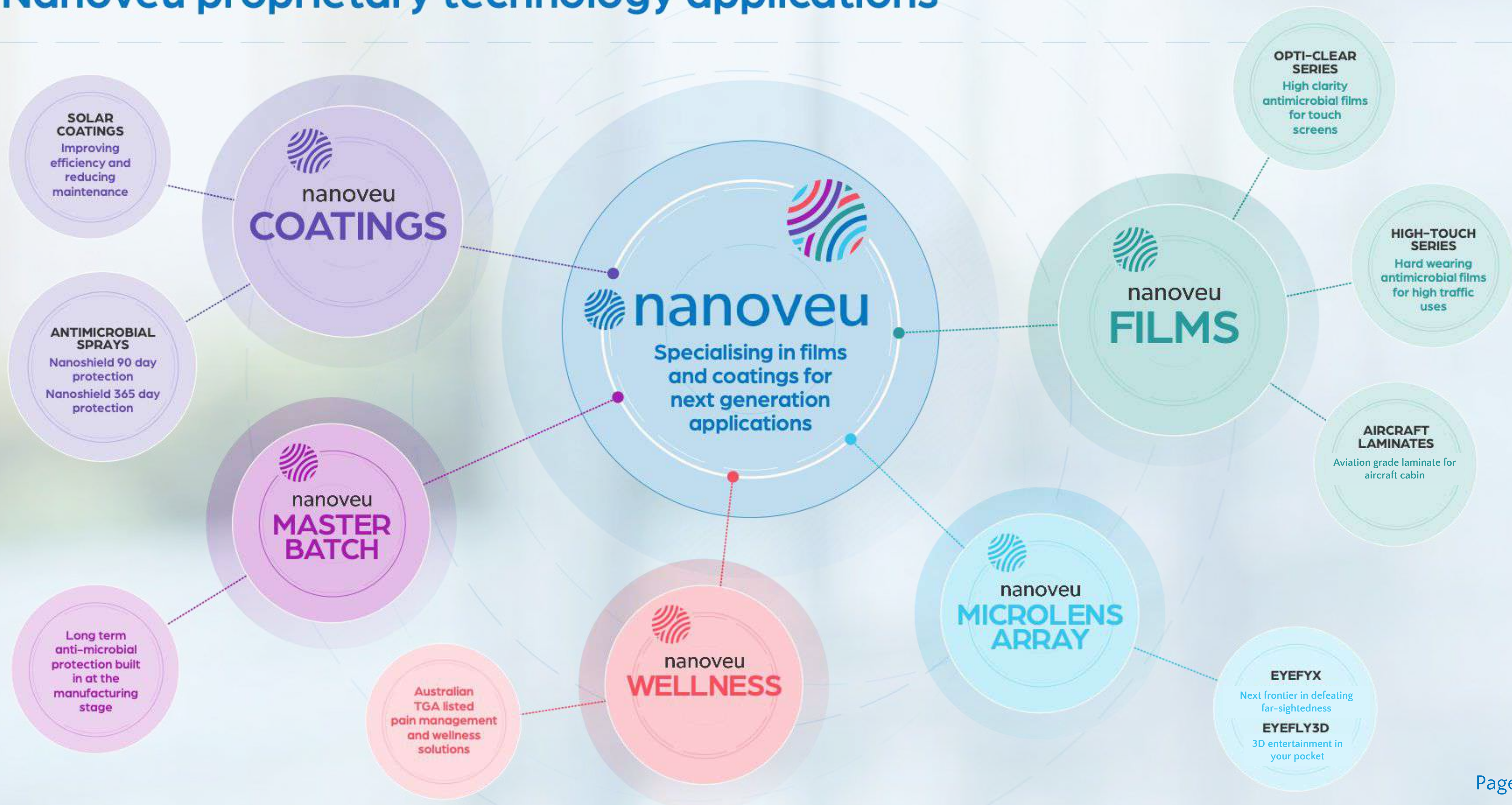
- Collaborate and supply companies looking to introduce antimicrobial technology to their product portfolio
- Address **industrial scale** opportunities across healthcare, energy and transport
- Partner with large solar distributors and assets owners

[1]https://cdn-api.markitdigital.com/apiman-gateway/ASX/asx-research/1.0/file/2924-02400065-6A1042796?access_token=83ff96335c2d45a094df02a206a39ff4

Nanoveu's Pipeline of proprietary technology



Nanoveu proprietary technology applications



COATINGS

Protective coatings for porous and non-porous surfaces.

NANOSHIELD™ ANTIMICROBIAL SPRAYS

90, 180 and 365 day
protection against
viruses and bacteria
on porous and
non-porous surfaces.

LIQUID GLASS COATING

Improving efficiency
and reducing
maintenance

'Spray and forget' infection reducing solutions

Nanoshield™ antimicrobial coatings are produced using many of the same active ingredients as our films. These coatings are specifically designed for larger and uneven surfaces, providing a cost-effective solution for antimicrobial protection.

COVID-19 is here to stay. Coupled with the prevalence of Infectious Diseases including Mould and fungi and airborne pathogens – new variants loom continuously.

Our solution

- (a) long-lasting: antiviral and antibacterial protection for up to 1 year,
- (b) robust – effective for up to 500 rubs,
- (c) versatile – porous and non-porous
- (d) independently validated by test reports in Singapore, USA, India, Malaysia, Japan^[2]

Our Product Nanoshield™ 90/180/365 day protection and is a NEA (National Environment Agency of Singapore) registered product for 3 out of 10 products listed.^[3]

^[2]https://cdn-api.markitdigital.com/apiman-gateway/ASX/asx-research/1.0/file/2924-02484862-6A1076323?access_token=83ff96335c2d45a094df02a206a39ff4

^[3]<https://www.nea.gov.sg/our-services/public-cleanliness/environmental-cleaning-guidelines/guidelines/list-of-household-products-and-active-ingredients-for-disinfection-of-covid-19>



Next generation coatings for the photovoltaic solar panels, windows, underwater cameras, metals in the marine environment.

Nanoshield™ Liquid Glass – silver oxide, titanium dioxide, and copper

- Forms a hydrophobic coating; a thin layer applied to a surface that repels water
- Prevents the formation of biofilms, algae, and dirt on glass to reduce maintenance costs and improve efficiency
- Designed to be applied to solar panels/farms, building glass and aluminium facades



[Click to view video](#)



Size of the Opportunity for Solar Coatings

The global solar panel coatings market size was valued at \$2.08 billion in 2020, and is expected to reach \$15.7 billion by 2030.

The global solar panel coatings market forecast expected at a CAGR of 22.4% from 2021 to 2030 with nano coatings being a majority contributor.

The Asia-Pacific accounts for the largest share of the market, followed by Europe.^[4]



[4] <https://www.alliedmarketresearch.com/solar-panel-coating-market-A11896>

Distribution Agreement for the Philippines

Nanoveu has entered into an exclusive marketing and distribution agreement with One Renewable Energy Enterprise Inc (One Renewable) to exclusively distribute Nanoshield™ Solar, the Company's proprietary antimicrobial coating products for photo-voltaic (PV) panels in the Philippines (Agreement).

The agreement is for an initial term of 3 years, with target sales of US\$0.75m in the first 12 months and US\$13m within the first 24 months.

Sales of Nanoshield™ are expected to help protect up to 21.5 MW of One Renewable's existing solar assets, and additional sales are anticipated as new solar power projects within One Renewable's pipeline are established, including a major 1,000MW solar project expected to be completed by the end of 2024. ^[5]

[5]https://cdn-api.markitdigital.com/apiman-gateway/ASX/asx-research/1.0/file/2924-02653860-6A1144887?access_token=83ff96335c2d45a094df02a206a39ff4



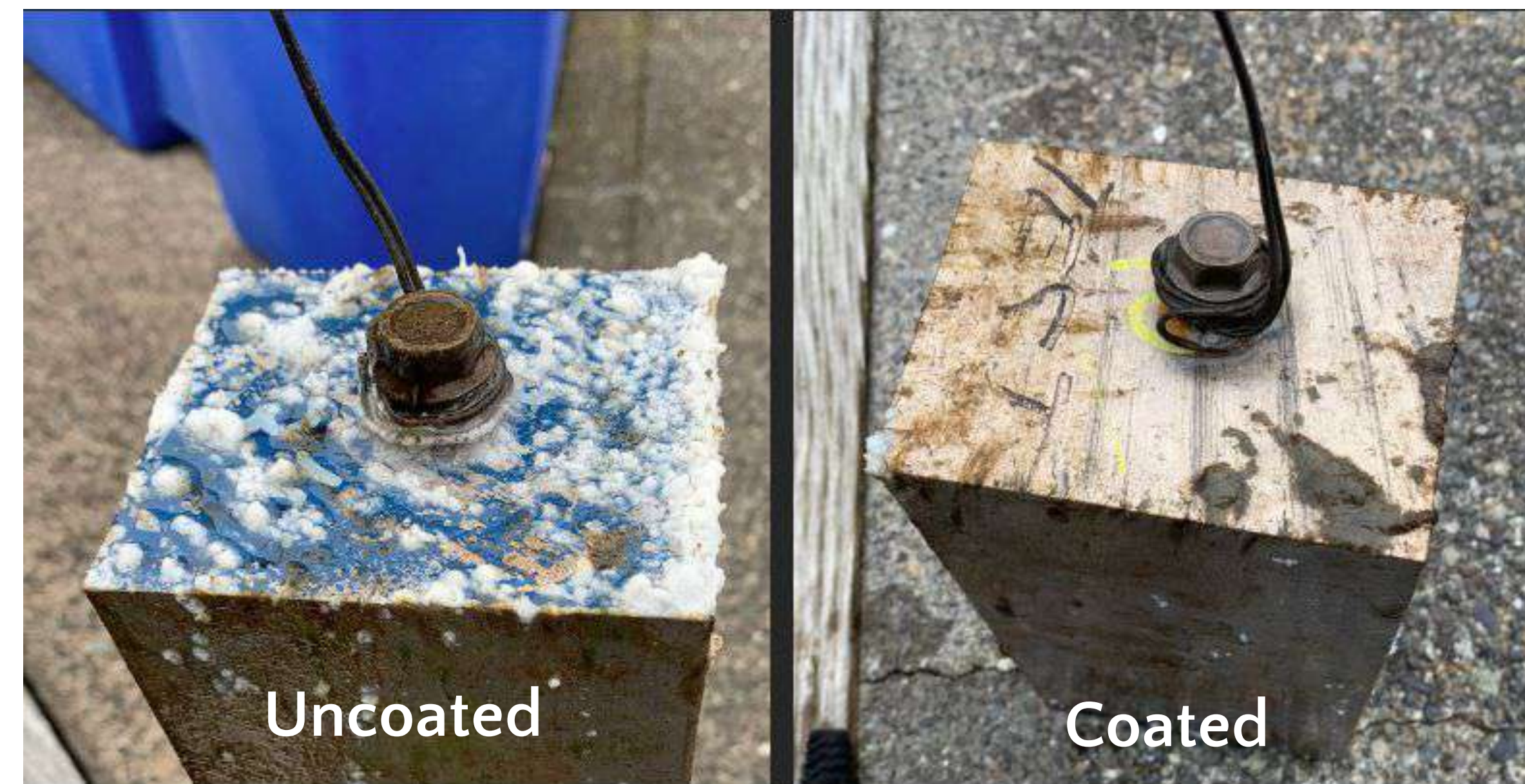
Nanoshield™
Solar

Next generation coatings for the marine environment.

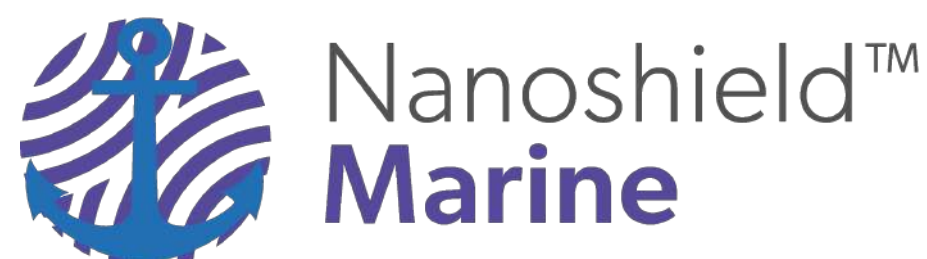
Nanoshield Marine – tourmaline & titanium dioxide

(see ASX announcement, 19th Apr 2023)

- Tourmaline for its ability to produce negative ions that will prevent the growth of bacteria and other microorganisms that contribute to biofouling.
- Titanium dioxide has photocatalytic properties that can break down organic molecules and inhibit the growth of microorganisms.
- Both tourmaline and titanium dioxide can prevent rust, although they work in different ways. Tourmaline negative ions have been shown to have a positive effect on reducing corrosion in certain materials, while titanium dioxide has been shown to form a protective layer on metal surfaces, preventing corrosion.
- Our innovative and eco-friendly antifouling coating provides a cost-effective and sustainable solution to prevent fouling and increase the lifespan of boats and other underwater surfaces



Result after 30 days in Pacific Ocean



FILMS

Protective films that provide disinfection for high-touch environments.

NANOSHIELD OPTI-CLEAR SERIES

High clarity
antimicrobial films for
touch screens

NANOSHIELD HIGH-TOUCH SERIES

Hard wearing
antimicrobial films
for high traffic uses

AIRCRAFT LAMINATES

FILMS

Antimicrobial PET & PVC Films

Nanoshield™ Opti-Clear

- PET films with a clear silicone adhesive designed for touch screen devices.
- The films use nano copper, PET polymers, and a proprietary manufacturing process to achieve excellent optical clarity and provide antimicrobial protection for one year.
- Easy to install, can be cut to any size, and are compatible with traditional cleaning products.

Nanoshield™ High-Touch

- A highly visible film solution for high-touch points in both indoor and outdoor settings.
- Easy to install, reduces cleaning frequency and costs, and is manufactured in Japan.
- Up to one year of use in high traffic areas.
- Available in monomeric for indoor use and polymeric with UV stabilizer for outdoor use.
- Cost-effective solution for maintaining a clean and safe environment in high traffic areas.

Nestlé Professional partnered with Nanoveu to deliver antiviral and antibacterial screen protectors for its **Nescafé** and **We Proudly Serve Starbucks®** coffee machines. The self-disinfecting Nanoshield film underwent strict scientific testing at Nestle Research, Lausanne, Switzerland. Nanoshield protection was applied to the touch screens and touch buttons of the coffee machines, the antimicrobial effect remains active after daily cleaning and withstands frequent touching. This was independently validated by Nestle Laboratories using the actual SARS-COV-2 virus [6]



[6]https://cdn-api.markitdigital.com/apiman-gateway/ASX/asx-research/1.0/file/2924-02400065-6A1042796?access_token=83ff96335c2d45a094df02a206a39ff4

FILMS

Aircraft Laminates

Nanoveu has completed research collaboration with the Institute of Material Science, a division of Singapore's largest research institution – A*STAR, to develop a new anti-flammable laminate product, with a particular focus on the aviation industry.

The collaboration was initiated by A*STAR in August 2021 and drew on Nanoveu's background in developing and commercialising nano imprint lithography products.

The Company's prototypes passed all required safety testing parameters. Testing was undertaken by Jamco USA^[7], A*STAR's nominated testing facility accredited by the FAA and European Union Aviation Safety Agency (**EASA**) to produce, record, and document data to be used for FAA and EASA certification programs.

[7]<https://www.jamco-america.com/Capabilities/TestingServices>



PERMAGUARD MASTER BATCH

Molecular level protection added during manufacture.

NANOSHIELD™
PERMAGUARD

Long term
anti-microbial
protection built in at
the manufacturing
stage

Applications

Nanoshield™ Permaguard introduces our copper compound into plastic during the manufacturing process.

This prevents the growth of microorganisms like bacteria, fungi, and viruses on plastic surfaces.

Especially important in healthcare and food industries where hygiene is critical.

Extends the lifespan of plastic products by reducing the build-up bacteria and fungi that can lead to staining, odour, and material degradation over time.

Suitable uses include medical devices and equipment, such as catheters, syringes, and surgical instruments.

Food packaging such as containers, films and wraps.

Consumer products, such as kitchenware, toys, and electronics.

Building materials, such as pipes, flooring, and wall coverings.

Personal protective equipment such as face shields and masks.

WELLNESS

Topical treatments infused with
Far-infrared and Resonance
Technologies for pain relief/soothing

ACUPOINT

Australian TGA listed
drug free solution that
improves blood flow
to soothe muscles and
joints.

WELLNESS

Soothing Series

Soothing Series is a topical range of products that works to relax muscles, and relieve discomfort by using a combination of proprietary technologies. The products also convey antimicrobial properties to the skin upon application.

Soothing Series is infused with a combination of two proprietary technologies that includes far Infrared that helps to dilate blood capillaries in affected areas.

Soothing Tape obtained TGA approval in Australia in December 2022



Acupoint Patch - App
(work in progress)



VISION

Tiny nano-lenses that improve image quality and enable distortion free 2D/3D.

EYEFYX MICROLENS ARRAY

Thin film lenses to view images on-screen without the need for reading glasses.

EYEFLY3D™ MICROLENS ARRAY

Immersive, glasses free 3D experience on mobile devices.

Vision Correction for Mobile Devices – In Development

EyeFyx uses nanotechnology to adjust digital images and text, allowing people that suffer from farsightedness (presbyopia) to view images on screens without requiring reading glasses. A patent for the product has already been filed and progressing through its National phase.

This project is in collaboration with Nanyang Technological University of Singapore and funded in part by the National Research Foundation of Singapore. The project is still in progress and is currently working on dimensioning a phalera of Micro Lens Array to yield the best results. ^[8]

Technology Features

- Microlenses fabricated using highly accurate diamond turning process
- Algorithm enables real-time image generation
- User's prescription inputted into algorithm

Technology Overview

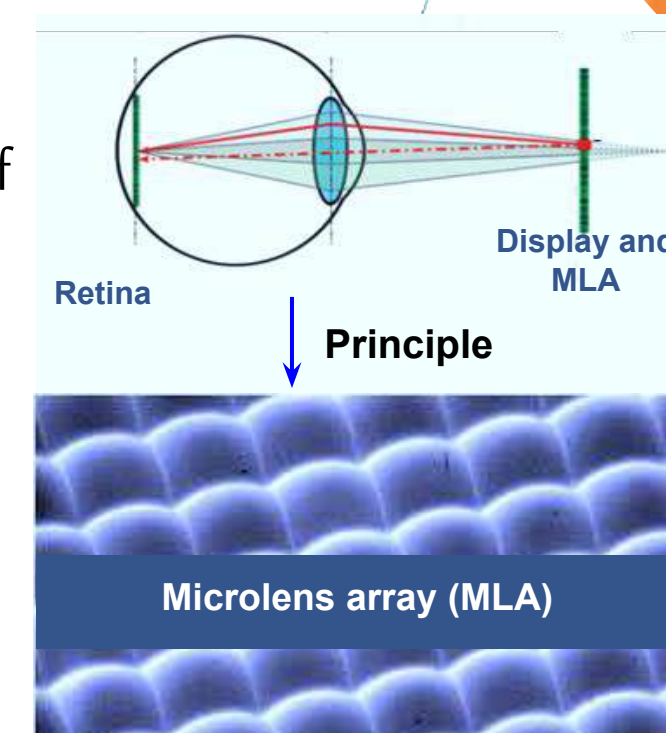
- Enables visually impaired users to clearly see displays without having to wear glasses
- Uses high-precision microlens array
- Controls directions of emergent rays
- Light field formed around user's eye pupil
- Image on display screen obtained by novel algorithm

Potential Application

- In-car navigation and instrumentation
- Any smartphone, tablet or laptop application used by the older generation, many of whom require glasses but are averse to wearing them

Benefits

- Users do not have to wear glasses or undergo expensive surgery
- This will benefit a very high proportion of the world's population
- If displayed image is very distant, this covers all reading glasses strengths



[8]https://cdn-api.markitdigital.com/apiman-gateway/ASX/asx-research/1.0/file/2995-02059743-6A913870?access_token=83ff96335c2d45a094df02a206a39ff4

DR. DAVID PEVCIC Non-Executive Chairman

Dr. David Pevcic is a medical doctor and businessman, with a principal focus on the resources and technology sectors. Dr Pevcic is also a Director of ASX-listed Battery Age Minerals Limited (ASX:BM8).

Dr. Pevcic holds a Bachelor of Science, Bachelor of Medicine and Bachelor of Surgery from the University of Western Australia and is a Member of the Australian Institute of Company Directors.

ALFRED CHONG Chief Executive Officer

Alfred is the founder of Nanoveu. He has over three decades of experience in growing companies and executing trade sales in California and Singapore. Prior to Nanoveu, Alfred was the Asia Pacific CEO for Atex Media Command, CEO for THISS Technologies Inc and 121View, and CMO at 3D International.

MICHAEL VAN UFFELEN Executive Director, Chief Financial Officer, Company Secretary

Michael is an experienced Director, CFO and Company Secretary who is a Chartered Accountant with over 30 years experience.

STEVE APEDAILE Non-Executive Director

Steven has worked in the accounting profession for nearly 30 years, including 7 years with KPMG Hong Kong and 18 years with Horwath Hong Kong. Steven has experience in all facets of international business, corporate finance and forensic accounting services.

Steven is a founding director and a former managing director of an ASX listed company, a Fellow of the UK Institute of Chartered Accountants in England and Wales, and is a Member of the Australian Institute of Company Directors.

Steve is also Chairman of Sprintex Limited (ASX:SIX). Sprintex is a world leader in compressor technology. See www.sprintex.com.au.

DR. MICHAEL WINLO Non-Executive Director

Dr. Michael Winlo, brings expertise from the biotech, pharmaceutical, and technology sectors. Currently, he serves as the Managing Director of Emyria Limited (ASX:EMD) and has a strong background as a Director and former CEO of Linear Clinical Research, a leading provider of pharmaceutical trials.

Previously, Dr. Winlo was the health lead for Palantir Technologies (NYSE:PLTR) in Silicon Valley, where he managed deployments for health companies and government organizations across the US and UK.

Dr Winlo has an MBA from Stanford University and an MBBS from the University of Western Australia

Capital Structure and Share Price

Nanoveu Limited (NVU.AX) [★ Add to watchlist](#)

ASX - ASX Delayed Price. Currency in AUD

0.0330 0.0000 (0.00%)

At close: 01:45PM AEST

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Previous close	0.0330	Market cap	11.196M
Open	0.0350	Beta (5Y monthly)	1.44
Bid	0.0330 x 1128000	PE ratio (TTM)	N/A
Ask	0.0350 x 5076200	EPS (TTM)	-0.0100
Day's range	0.0330 - 0.0350	Earnings date	28 Feb 2023
52-week range	0.0080 - 0.0350	Forward dividend & yield	N/A (N/A)
Volume	117,477	Ex-dividend date	N/A
Avg. volume	250,288	1y target est	N/A



Capital Structure (as of 20th April 23)

ASX Code	NVU
Shares on Issue	280.8m
Options on Issue	86.3m
Performance Rights on Issue	9.8m
Share Price – 52 Week Trading Range	\$0.008 - \$0.035
Market Capitalisation	A\$11.196M

COATINGS

- Range of protective coatings for commercial applications
- Suitable for large & uneven surfaces
- Products use combinations of silver oxide, titanium dioxide, tourmaline and copper particles
- Nanoshield™ Solar: prevent the formation of biofilms, algae and dirt, reducing maintenance costs and improving efficiency
- Nanoshield™ antimicrobial coatings provide continuous protection against viruses and bacteria, improving hygiene and reducing transmissibility.

FILMS

- Nanoshield™ Opti-Clear uses a proprietary manufacturing process to provide excellent optical clarity and easy installation
- Nanoshield™ High-Touch is a visible film solution for high-touch points in both indoor and outdoor settings

OTHER

MASTER BATCH

- Introduced into plastics during manufacturing to prevent the growth of microorganisms

WELLNESS

- Provides pain relief by increasing blood circulation, relaxing muscles, and relieving discomfort
- Uses a combination of proprietary technologies, including far infrared

VISION

- From a world population of 8.5 billion, approximately 1.8 billion people have presbyopia
- EyeFyx hopes to address this with a combination of patented hardware and software for digital displays



Thank you for viewing

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