



ABN 11 124 426 339

Level 3, 2-4 Ross Place, South Melbourne, VIC 3205

**P** +61 (3) 9673 9690 **F** +61 (3) 9673 9699

[www.purifloh.com](http://www.purifloh.com) **E** corporate@purifloh.com

27 May 2021

ASX Announcements

4<sup>th</sup> Floor

20 Bridge Street

Sydney, NSW, 2000

## **Presentation to Baker McKenzie CleanTech Conference**

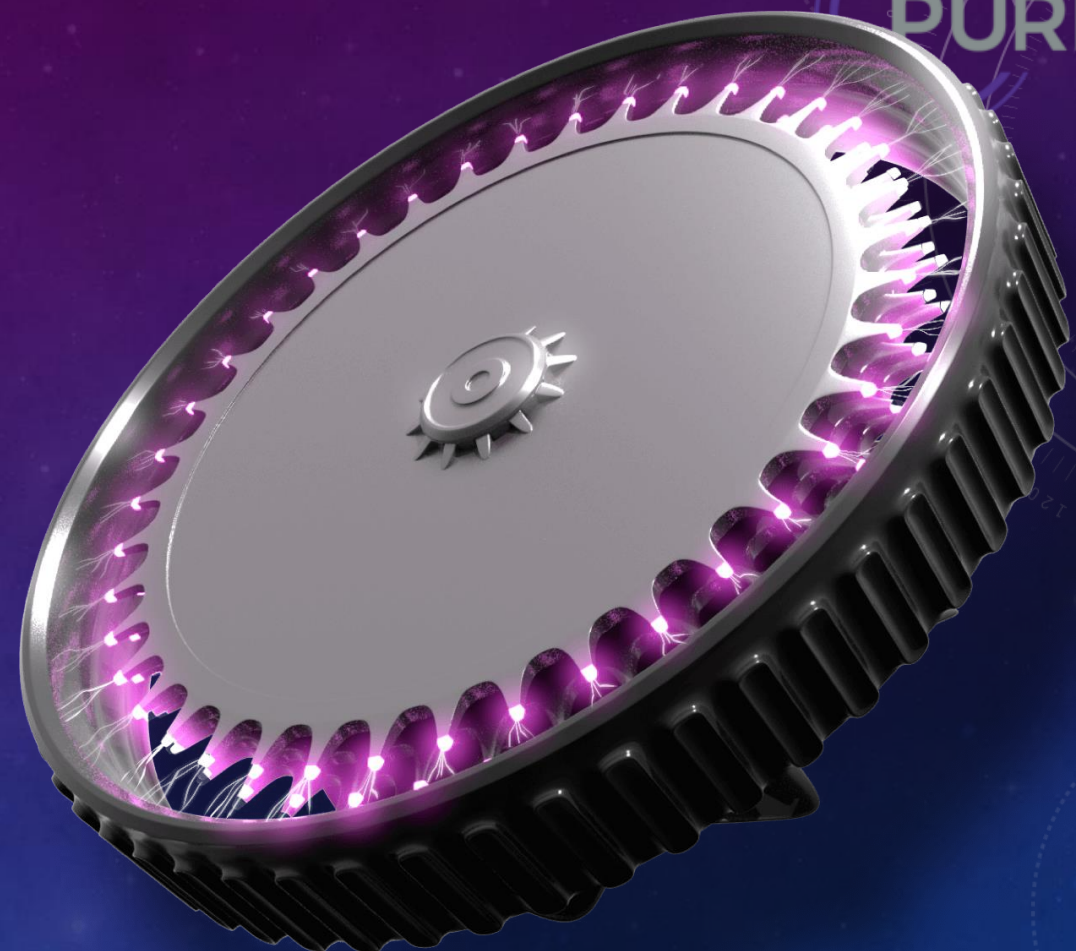
Please find attached the presentation to be given by Dr Alex Sava at the aforementioned presentation this morning.

**Approved for release by the Board of Purifloh Limited**

-ENDS-

# PURIFLOH

PURIFLOH



CleanTech Investor  
Conference

Dr. Alex Sava

May 2021

[www.purifloh.com](http://www.purifloh.com)

PURIFLOH

# ABOUT PURIFLOH (ASX:PO3)

- PurifLOH developing, manufacturing and marketing proprietary innovative solutions and IP based on the FRG technology.
- Owns exclusive global rights to a suite of IP and knowhow on innovative Free Radical Generation (FRG) Plasma technology developed by Somnio Global (Detroit).
- Protected by multiple patents.
- Numerous opportunities for applications across multiple industry segments and end-user markets.
- Strong value proposition with green credentials.





PURIFLOH

PurifLOH technologies are capable of addressing one of the most overlooked carbon emission sources:

## DISINFECTION AND STERILISATION



**CLEANTECH**

Healthcare accounts for 1.8% - 5.0% of global carbon emissions (compared to Aviation, 2.5%) with 30%-50% of that energy used for disinfection and sterilisation.

Disinfection's carbon footprint is a combination of:
















Energy demand: a typical instrument reprocessing in hospital takes >2 hours at 60° - 132°C using thousands of litres of RO water; and

Transport: in a 800-bed hospital up to 100,000 instruments need to be transported to one central location, often travelling >500m each way between surgery and the sterile supply department.

This is just one domain that PurifLOH is attracted to particularly due to the green qualities of our solution and the potential environmental advantages of our solutions.

# MODERN DISINFECTION IS FAR FROM CLEANTECH

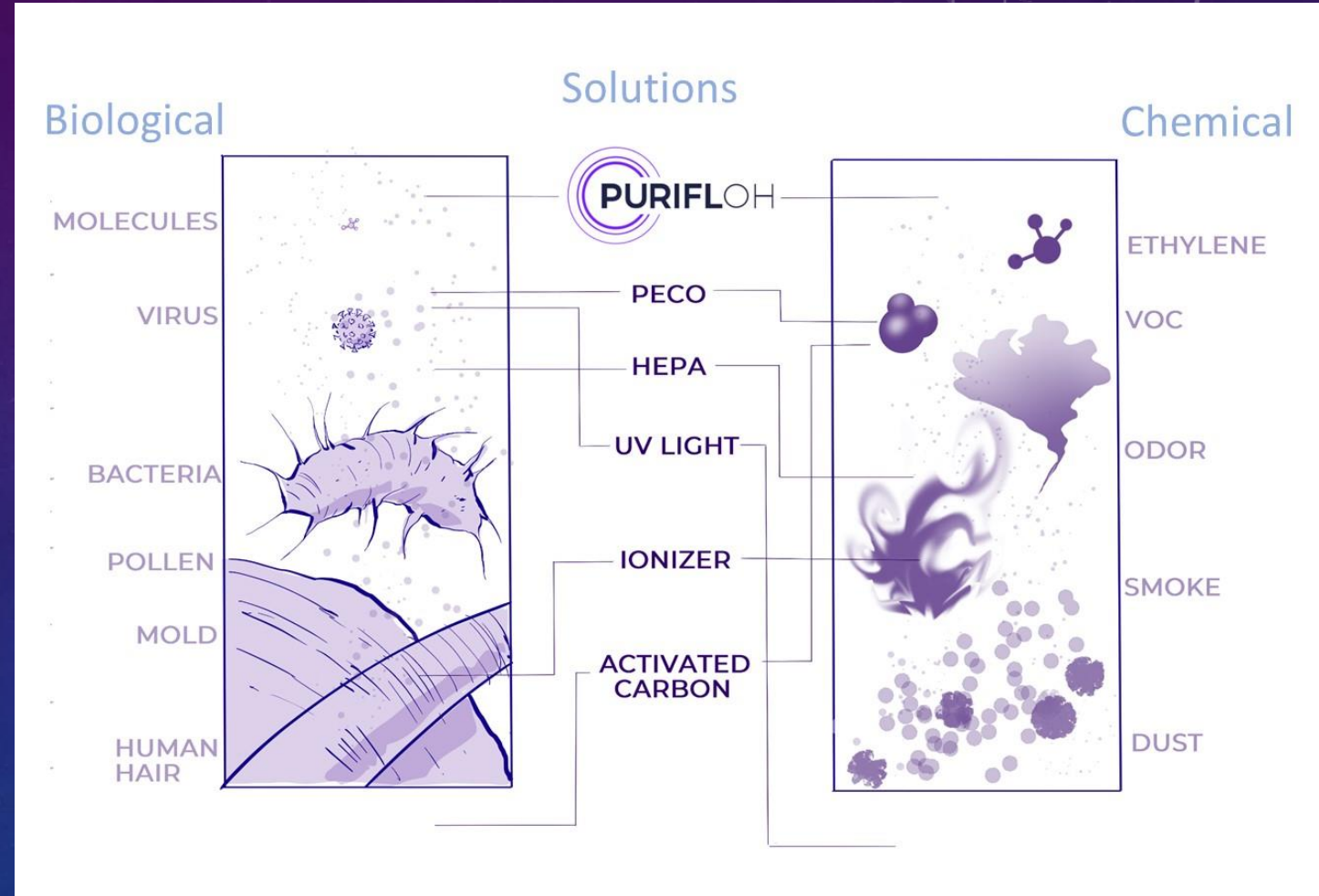
PURIFLOH

|                       | PuriflOH  | Autoclave  | Hydrogen Peroxide vapour   | Peracid fogging  | Formaldehyde fumigation  | Benzalkonium chloride fogging  |
|-----------------------|---|--|--|--|--|--|
|                       |  |                   |                                |                                 |                                 |                                 |
| Power consumption     | 0.05kWh   | 3kWh   | 1.5-3kWh   | 2kWh   | 3-5kWh   | ~1kWh  |
| Occupational risks    | none  |                  |  Dangerous chemicals corrosive |  Dangerous chemicals corrosive |  Dangerous chemicals corrosive |  Dangerous chemicals           |
| Environmental hazards | none  | high energy<br> | require consumables<br>      | require toxic consumables  | require toxic consumables<br> | require toxic consumables<br> |

# BENEFITS OF PURIFLOH FRG TECHNOLOGY

PURIFLOH

- Highly effective across a broad range of contaminants
- A powerful, chemical-free process
- Low capital and operational cost
- Multiple market segment opportunities
  - Air Purification
  - Water Treatment
  - Surface Disinfection
  - Medical Disinfection



# ABOUT FREE RADICAL GENERATION PLASMA (1)

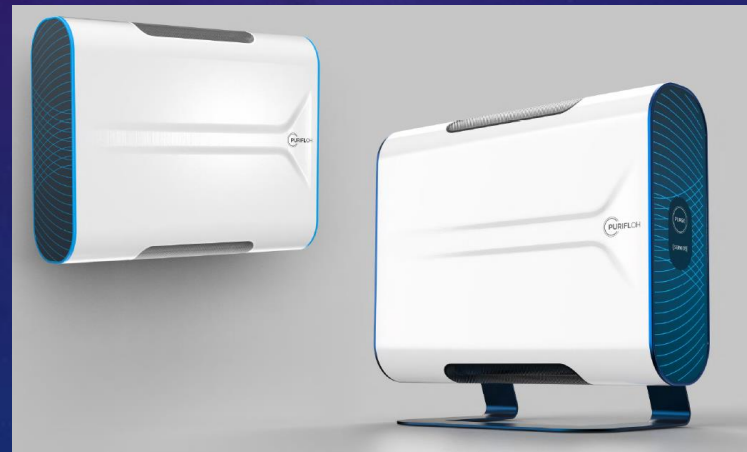
PURIFLOH

Small scale core reactors (as small as 5x5x7cm), requiring just 10-20W power to generate powerful disinfecting streams.

Biocidal efficacy equal to hospital disinfectants.

Portable: mains and battery-powered compact units could be installed virtually anywhere.

Scalable and modular.



# ABOUT FREE RADICAL GENERATION PLASMA (2)

PURIFLOH

Generates powerful fast decomposing free radicals

Essentially hazard-free (outside the reactor zone):

- no consumables other than air and power
- no heat
- no dangerous by-products
- no other hazards to human or environment
- residue-free

Meets all criteria for ideal disinfection process:

- Significantly less energy (up to 100 times)
- Biocidal efficacy equal to hospital disinfectants
- Robust and reliable – no moving parts
- Humidity and pollutant tolerable – operates in any ambient air





# ABOUT FREE RADICAL GENERATION PLASMA (3)

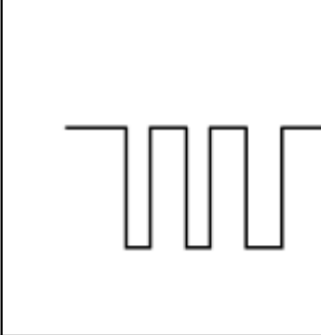
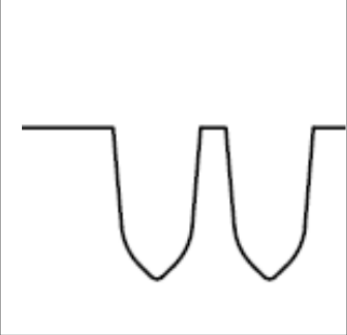
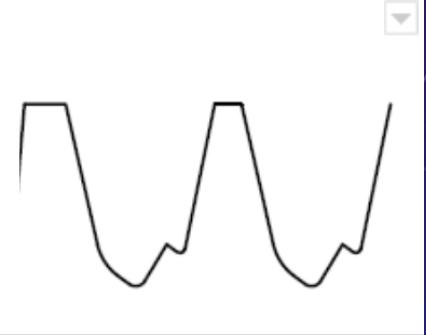
Why is it so different?

The ratio of radicals, electrons and stable biocidal molecules in the plasma stream is adjusted by in-built (software) switch of the reactor power supply voltage and frequency.

Offering broad range of biocidal mixtures: from ozone-free to ozone-rich disinfecting mixtures to suit majority of applications.

No hazardous residuals.

No need for different reactors: same core reactor could be used for all applications.

|   |   |   |   |
|---|---|---|---|
| <b><i>Voltage profile of the reactor power supply</i></b> |  |  |  |
| <b><i>Disinfection mode</i></b>                           | ozone-less  | mixed   | ozone-rich  |
| <b><i>Active species produced by plasma</i></b>           | OH<br>O-OH  | hydroxy- and peroxy radicals<br>ozone   | O3<br>molecule (stable)<br>Hydrogen peroxide<br>and peroxy acids                    |
| <b><i>Targeted applications</i></b>                       | Air disinfection<br>Disinfection of surfaces  | Air<br>Surface  | Liquid  |
| <b><i>To be used in</i></b>                               | Occupied rooms  | Unoccupied rooms  | Water disinfection,<br>ozone+peroxide mist<br>(Bluemist)                            |

# Case 1. Frequent disinfecting air conditioners/coils COVID-safe hotels and shared rooms/offices/wards

PURIFLOH

The greatest risk of acquiring COVID-19 between subsequent hotel guests is via air conditioner/coil ~ 1,000 times greater than through surfaces\*.

To mitigate the risk, US CDC, WHO recommend avoiding air recirculation altogether. This potentially increases aircon energy demand 200% - 700% (!!!) times.

The problem: each clean of hotel aircon requires 2 technicians for 1-2 hours at ~\$200+ per aircon unit, the use of chemicals and most likely requires closing off the floor.

\* <https://media.nature.com/original/magazine-assets/d41586-021-00251-4/d41586-021-00251-4.pdf>

# AIRCONDITIONERS PATHOGEN / VIRUS HARBOURING SITES

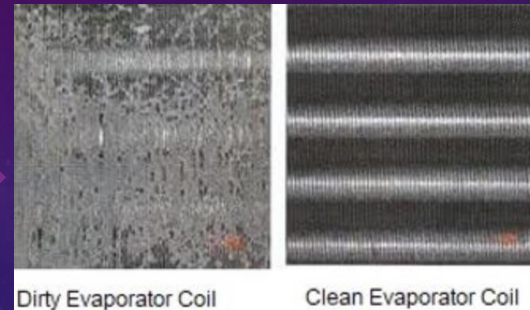
PURIFLOH



Return filter



Blower



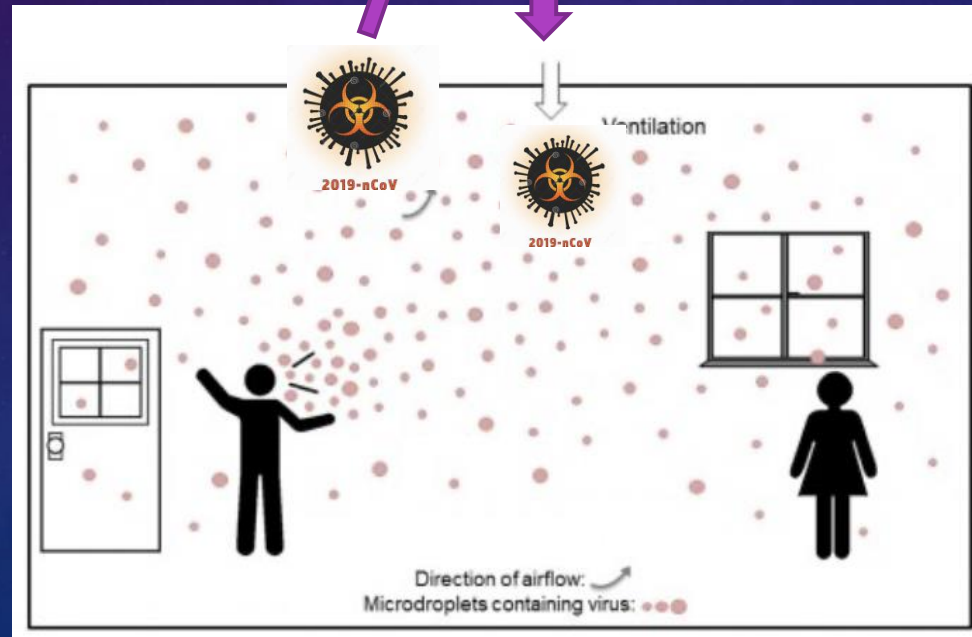
Coil



Supply air grill



Drip tray



# PATHOGEN / VIRUS SOURCE SITES : COIL

PURIFLOH



Risk level – (by far the) HIGHEST  
 $10^3$  -  $10^7$ cfu/sq.cm, often blocked by biofilm

*Pathogens may multiply and survive for months on wet, dark hard-to-clean surfaces*

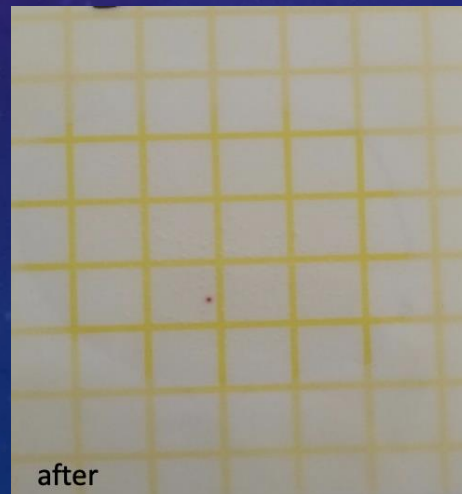
*Likely aerosol particle size of <2.5-micron enhancing infectivity*

10-15-minute daily coil disinfection cycle with fixed or removable FRG device

Reduces energy consumption manyfold

Improves compliance with Infection Control protocols

In lab tests >99.9% kill on aircon coils



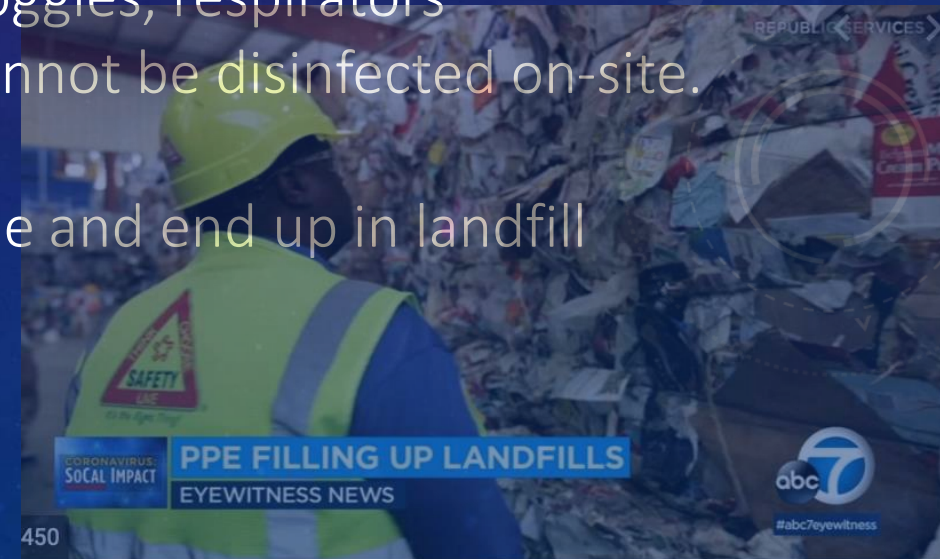
# CASE 2. Disinfection of safety PPE

PURIFLOH



Millions of hard hats, goggles, respirators, harnesses, ear-muffs cannot be disinfected on-site.

Often used as disposable and end up in landfill prematurely.



# CASE 2. Disinfection of safety PPE

PURIFLOH



Strict adherence to 7-step disinfection protocol costs \$7-\$14 per \$12 hard hat.

Some ethical construction companies were donating to Fiji, PNG, but stopped during pandemics.

- 1) These disinfection instructions are for hard surface components of the head, eye and face protection products. Neoprene goggle straps may also be disinfected.
- 2) The following should be removed: foam gaskets and/or fabric straps from eyewear and goggles; brow pads/sweatbands from headgear and hard hats; hard hat suspensions.
- 3) With any disinfecting agent, follow the User Instructions and/or EPA label in regard to PPE needed, usability, application and contact time.
- 4) Disinfect by soaking or wiping the hard surface components such as eyewear, goggles, face shield or hard hat shell according to the User Instructions for the selected disinfectant chemical. Surfaces must be visibly wet with disinfectant for the full specified contact time.
- 5) 3M strongly recommends that a water rinse/wipe down occur after disinfection to thoroughly remove disinfection chemicals and reduce the possibility of user irritation and premature degradation of equipment.
- 6) Air dry in a non-contaminated area.
- 7) Reassemble per User Instructions.

**3M** Science.  
Applied to Life.™

Technical Bulletin  
October, 2020  
Revision 3

Cleaning and Disinfecting 3M™ Head, Eye and Face Protection Products following Potential Exposure to Coronaviruses

# CASE 2. Disinfection of safety PPE

PURIFLOH



PurifLOH to offer a simple FRG-based PPE disinfection box

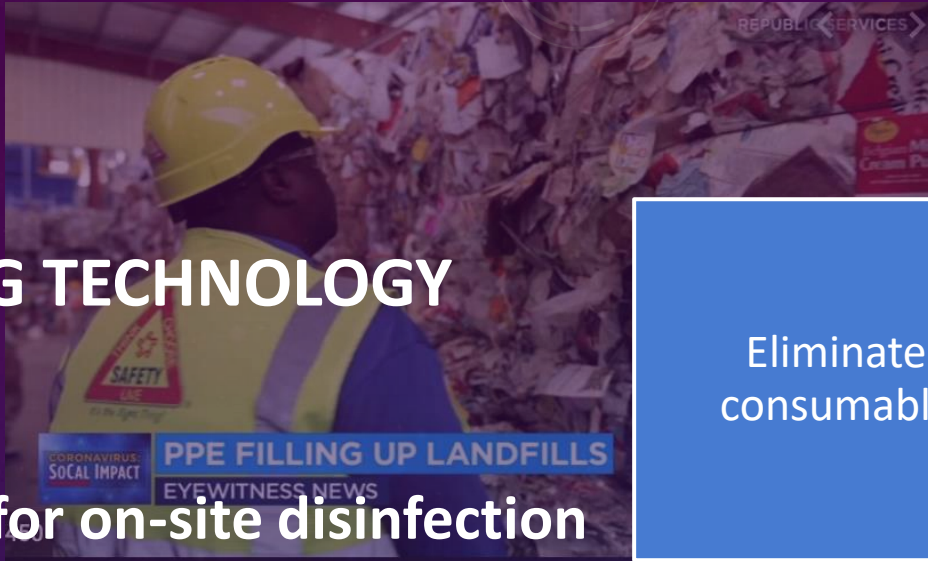
10-minute one-touch cycle in a chamber incorporating multidirectional plasma flows

Alternative to current disinfection protocols which are energy and labour-intensive

Non-hazardous cycle that is low energy and could be used for both daily and pre-transfer disinfection at a fraction of the cost of current protocols

Improves hygiene, reduces waste whilst improving environmental outcomes





## PO3' FRG TECHNOLOGY

Demand for on-site disinfection solutions is growing by the day

Pandemic had already affected the environment.

Purifloh offers low carbon footprint disinfection solutions.

Eliminate or reduce consumables required

Low power requirement

Modular and scalable – reduce waste and improve efficiencies

Outcomes resulting in further carbon footprint reduction down stream



The background is a dark blue gradient. It features several technical diagrams: a circular gauge with a scale from 80 to 200 and a needle pointing to approximately 180; a circular arrow diagram; and a circular diagram with concentric circles and arrows. The word "PURIFLOH" is written in a bold, white, sans-serif font in the upper right quadrant.

**PURIFLOH**

**QUESTIONS**